THE GENESEE FARMER

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COWS AND CARROTS.

Mr. J. G. Hoyt, of Exeter, N. H., writes a letter of inquiry to the New England Farmer, asking information as to the value of carrots for milch cows, in which the opinions of several dairymen are cited to the effect that carrots do not sensibly increase the quantity of milk given, but they improve its quality and augment the per centage of butter. The editor of the Farmer quotes authorities whose statements are corroborative of the above.

It is a little remarkable that, after carrots have been extensively grown and fed to cows for thirty years, no one in New England appears to know the relation which 100 lbs. of this root and 100 lbs. of good hay, grass, or corn meal, bear to any given quantity of milk. If our friends there do understand the practical operations of milk-making, they will thank us for giving them an opportunity of informing us New Yorkers how many pounds of milk 100 of green clover, timothy, herds-grass, blue grass, orchard grass, or a mixture of any two, or of the whole of them, ought to yield in the system of "a good cow." We have visited Massachusetts twice in the last two years, and made particular inquiry on this point, as well as to the relation that 100 pounds of good hay, and a like weight of corn meal, bear to any given quantity of milk; but we failed to elicit any light beyond a luminous Yankee guess. Why New Englanders should be so opposed to experimental farming with a view to substitute facts for guesses, passes our comprehension, unless the constitutional desire to guess at everything be in truth the strongest element in the mind of the people.

When a cow eats 60 lbs. of grass a day for a week together, and gives 30 lbs. of milk a day at the same time, how much of the grass goes to form the milk? If any New England State, or New York, had established an experimental farm twenty years ago, or even ten years ago, no one would now have to ask so simple a question; nor would there be any doubt as to how much milk 100 lbs. of carrots will yield when fed with steeped cut corn-stalks — the way in which we have given them to dairy cows. We have bought carrots, hay, corn meal, shorts, brewers' grains, and still slops, for the production of milk to sell; and while we do not claim to have made what our friends might consider "scientific experiments," yet our experience is decidedly in favor of carrots. Accurate scientific experiments in rural economy can not be made without costing considerable money; and so long as a State in which eleven or twelve hundred thousand cows are milked, and which produces fifty million pounds of cheese and eighty-five million pounds of butter a year, is too poor or too rich to pay for any experiments designed to increase the yield of milk from any given amount of food, we feel no obligation to give either our time or money for its benefit in that behalf.

As there are 86 lbs. of water, and sometimes 87, in 100 lbs. of carrots, they should be fed with more solid feed to realize their highest virtues, whether eaten by horses,

oxen, or cows. But men producing milk to sell rarely fail to feed liberally on slops of some kind, or roots that contain more water than green grass does, which is 75 per cent. We recently visited a pretty extensive dairy establishment near Washington, and found thirty thousand bushels of turneps well housed for feeding cows. In these turneps there is not less than 90 or 91 per cent. of pure water, and yet the milk from this dairy is said to be the best sold in the city. We have frequently heard it commended by intelligent gentlemen who know nothing of the way in which the milk is produced. Nearly all the hay is sold off this farm, and a large stock is kept on roots and cornstalks, shucks and blades. The farm is the property of Mr. CHARLES CALVERT, President of the Maryland State Agricultural Society, and contains about 2700 acres. It is grazed by some of the best Short Horns, Ayreshires, and Alderneys, in the country. Milk is sold at twenty-five cents a gallon by the quantity the year round.

From an extended observation and large correspondence, we have reason to believe that the culture of carrots and other roots for the feeding of cows and other stock, is on the increase; but it is an error to suppose that a pound of carrots is equal in value to a pound of oats for a horse or an ox. 100 lbs. of dry oats contain only 12 of water; whereas, 100 of carrots contain 86 pounds of water. One advantage in feeding carrots is, that the digestive organs separate all or nearly all of the elements of nutrition which they possess; while cattle and horses often void corn and oats whole, or only slightly digested, and in a way that the farmer loses much of the value of the grain consumed. This remark applies more to the Middle, Western, and Southern States, than to the farmers of New York and New England. The fault we find with the latter is, not that they decline to investigate the principles of good husbandry themselves, but for virtually instructing their representatives in State and National Legislatures to withhold all aid from such as desire to study agriculture as an honorable profession. Nobody knows anything beyond a guess about producing milk, meat, or wool, in the United States; not because there has been no young men of talent and industry to investigate these branches of husbandry in a critical and satisfactory manner, but because their desire to understand the laws of nature which establish the relations that rocks bear to soils, soils to plants, plants to animals, and animals to their fat, muscles, bones, milk, and wool, has been most cruelly crushed in the bud. A sneer at their "science" is simply adding insult to injury. There is such a thing as killing offspring when born and before; and this infanticide is inflicted upon rural science in its embryo state, or soon after.

We have just had the pleasure of an hour's conversation with Mr. ELIAS AYRES, an emigrant from Worcester county, Mass., to Loudon county, Va., where he has been engaged in the production of cheese for several years. He says that a given quantity of food fed to the native cows of the country, yields about half as much milk, cheese, or butter, as it would have done if consumed by such cows as are common in New England. Hogs require about a third more corn to make 100 pounds of pork in Virginia than in Massachusetts. We have in our possession many letters from practical farmers, which go to prove that some get three times more meat, wool, and dairy products from a given amount of grass, hay, grain, and roots, than others obtain. When we said that 100 lbs. of carrots *ought* to yield 50 lbs. of milk in good cows, we did not say that good cows as now kept *do* yield so much. The remark was made, as thousands of others have been, to provoke discussion, bring out the truth, and ultimately convince a majority of our readers that the time has come when the study of husbandry and tillage should commence in this nation of farmers.

Before any considerable quantity of milk can be separated from the blood of a cow, the first and paramount wants of her system, for the purposes of constant respiration, and to repair the waste of elements in bones, muscles, nerves, and other tissues, must be supplied from her daily food. The primary wants of nature being satisfied in a skillful manner, we may then proceed to separate milk from the blood in its passage from the

extremeties of arteries into veins in the udder, or lacteal gland, to the best possible advantage. In some glands, two pounds of milk an hour, or forty-eight in twenty-four hours, have been secreted; and even considerably more than this result has been attained. Now, if we could have our way in educating the youth who are to keep cows, every one should have a clear idea of nature's plan of separating from arterial blood a quart of rich milk an hour. There is no hocus-pocus black art in this beautiful operation, and a child with half an eye may see it, if his dad will only let him. If it were not for the vinegar of prejudice, and the aqua fortis of ignorance, the laws of Providence which really govern the results of farm labor would be studied and obeyed with great success in this republic. All that we contend for is the sober, steady, and diligent investigation of the laws of God. If we mistake not, our highest duty and our highest interest alike demand that His laws be regarded as the basis of all agricultural principles. From no other point of view is it possible to see agriculture as it is; or rather, as it ought to be. Principles, to be worth anything, must be founded in nature, and nature is everywhere under the control of laws established by the Creator. A knowledge of these laws is science, and anything short has little claim to that appellation. Hitherto science has done very little for tillage and husbandry, simply because its principles are treated with general neglect and contempt.

Why should whey, which contains very little butter and no cheese, be a valuable addition to the feed of cows for the production of cheese, in dairies for that purpose? The large per centage of sugar in whey supports respiration, and thereby permits food that abounds in the elements of cheese to be appropriated to the formation of milk, instead of being consumed to keep the animal warm. Nature's process for making milk, and the adaptation of the raw material to her purposes, are matters to be well understood before one can expect to see the relation that 100 lbs. of carrots or grass bear to 50 lbs. of milk, under the most favorable circumstances.

BEET-ROOT SUGAR.

Sugar is now not only a luxury, but a *necessary* of a civilized community—indispensable to the enjoyment and comfort of human life. Its sources are various and inexhaustible, being found in greater or less quantities in nearly every vegetable. It is divided by chemists into two kinds, *cane sugar* and *grape sugar:* the former being principally obtained from the cane, beet-root, maple and palm trees; and the latter existing in the grape and nearly all fruits. Cane sugar can be easily converted into grape sugar, but the inverse conversion has not yet been effected. Their composition is as follows:

	Cane Sugar.	*Grape Sugar.*
Carbon,	47.1	36.7
Hydrogen,	5.9	6.8
Oxygen,	47.0	56.5
	100.0	100.0

Cane sugar is readily obtained in a hard crystallized form, but grape sugar is crystallized with great difficulty, and is usually found in the form of molasses. Starch is convertible into grape sugar by the use of diluted sulphuric acid, and in the malting process the starch of the grain is converted into sugar by *diastase.* By the use of yeast, or other *nitrogenous, fermenting* substance, sugar, from whatever source obtained, is convertible into carbonic acid and alcohol, the intoxicating ingredient of all spirituous liquors, wine, beer, cider, &c., &c.

The cane contains about 18 per cent. of sugar, though by the present process of manufacturing it, little more than 7 per cent. is obtained. This is owing principally to the difficulty of expressing all the juice from the cane. Thus, while the cane contains 84

per cent. of juice, the average quantity secured by the manufacturer is but 50 per cent., and in some cases not more than 30 per cent. is obtained.

Beets have long been used in France for the manufacture of sugar; and though they were first grown and extensively used for this purpose during the continental system of embargo, when sugar was a dollar per pound, yet they are at the present time grown to a great extent in France with considerable profit, and sugar at eight cents per pound. They are also being grown in Ireland; but it is yet problematical as to whether they will pay there, the price of sugar being but six cents per pound and the climate being colder, not so well adapted for the formation of sugar in the beets. The composition of the beet, the mean of several analyses, is as follows:

Water,	87
Sugar,	8
Woody tissue,	5
	100

By the processes of manufacturing now adopted in France and Belgium, from 4 to 6 lbs. of fine, white, crystallized sugar is obtained from 100 lbs. of beets; and it is but reasonable to suppose that by further improvements in the machinery, and possibly in the cultivation of the beets themselves, *all* the sugar they contain will be obtained, and this quantity augmented by special manures and better cultivation.

The cultivation of the sugar beet is similar to that recommended in the March number, page 82, for mangel wurzel, though more plants should be left per acre, as the beets do not grow so large as the mangels. The rows may be twenty inches to two feet apart, and the plants singled out from eight to ten inches in the rows. The seed should be sown the latter part of May and first of June. The plants will be ripe about the last of August. Sixteen tons per acre is the average in France, though thirty tons are sometimes obtained on very rich land. We think twenty tons per acre might be usually obtained in this country by careful cultivation and judicious manuring. Taking five per cent. as the average amount of white sugar obtained by the common manufacturing process, a ton would give 100 lbs.; or an acre of beets of twenty tons, *one ton* of sugar. This, at six cents per pound, would be $120 per acre; and this besides the leaves of the plants and the residue of the bulbs, which are very valuable as food for cattle and hogs. The value of the beet-root in France is estimated at $3 per ton. The cost of raising a crop of beets in this country can not exceed $35 per acre, leaving, at this estimate, a a profit of $25 per acre for interest on land, &c. Of the cost of extracting the sugar from 20 tons of beet in this country, we can not speak very definitely; but where wood or coal is cheap, it appears more than probable that it could be done and leave a good round sum as profit for $60.

We think the matter well deserves the serious attention of our farmers; and are glad to learn from the many inquiries we have lately received respecting the culture of sugar beets, that they are alive to its importance. We would advise to small beginnings at first, so that the loss from any error in the manufacture, if any, would be small.

The process of reducing the beets to pulp and pressing out the juice, is very similar to that commonly adopted in the making of cider. When the juice is obtained, it is placed in a furnace and about 300 grains of pure lime added for every gallon of the liquor. It is then heated and kept as near the boiling point as possible without ebullition for about half an hour. This is for the purpose of freeing the liquor from impurities. The clear juice is then run off, passed through filters of animal charcoal, or burnt bones, and concentrated by evaporation till the sugar crystallizes. In France, about four hours are occupied from the time the beets are ground till the liquid is in the crystallizing pans, though this time is considered much too long and efforts are making to shorten it. It is necessary that great expedition should be used to prevent loss from fermentation, which proceeds with great rapidity in warm weather, and greatly reduces

the amount of sugar. In the Patent Office Report for 1849 and '50, page 405, there is a most interesting article by Mons. MELSENS, detailing a series of experiments on the best means of checking fermentation of the pulp and juice during manufacture, from which it appears that bi-sulphite of lime added in small quantities prevents fermentation and removes any discoloring matter, which often injures the sale of beet sugar. By the aid of this discovery the pulp and juice can be kept for any length of time without injury, and the necessity for hurry is in a great measure removed. The cost of the bi-sulphite of lime must be little, as the materials, sulphur and lime, are everywhere abundant and cheap, and the mode of manufacture easy and simple.

The cultivation of the sugar beet, if it can be rendered profitable, will greatly increase the fertility of the farm, as nothing is exported from it but sugar, and all the nitrogen, alkalies, and phosphates, retained as food and manure. Super-phosphate of lime is a very valuable manure for this crop.

UNDER-DRAINING.

THE reason for *under*-draining is found in these two facts: First, That water, however small in quantity, remaining stationary or stagnant about the roots of plants, is extremely injurious; experience demonstrating that no amount of manure will make a plant thrive while the roots are surrounded by stagnant water. Second, That water falling upon and *percolating through* the soil is not only not injurious, but greatly beneficial to vegetation, furnishing plants with elements which they need, and imparting strength and vigor of growth. On these two propositions the whole theory of draining hangs; and it is simply the most efficacious methods of removing the stagnant water, and rendering the soil as much like a *filter* as possible, that is matter of discussion. There is much diversity of opinion on this subject which we cannot discuss, but must give the methods generally adopted with the most success.

Stone drains were first used, then horse-shoe tiles, and now 1½-inch to 2-inch pipes pipes are found to be much the cheapest and best for draining purposes. In England this pipe, either round or flat-bottomed, is superceding all others. It was at first supposed that the water would not find its way into the pipes, but experience proves this to be incorrect, the joints affording sufficient avenues for this purpose.

In under-draining, the first thing is to provide an outlet for the water brought by the drains. This it will be always necessary to clean out to prevent obstruction, as a stoppage at the outlet or main drain renders the whole network of pipes useless. A fall of 1 in 700, with well laid pipe, passes off the water freely; but where there is plenty of fall, more should be given. The depth of drains and the distances apart will of course depend a great deal on the kind of soil and whether there are any springs as well as surface water to be removed; from two to five feet deep are the extremes, three feet being in general the best. The distance apart ranges from 16 to 100 feet on soils which need draining at all; and there are very few but what imperiously demand it.

The cost of draining depends a great deal on the price of pipes and on *the skill of the digger*. Drains can be cut, the pipes laid and covered up again, all complete, for twenty-five cents per rod. The price of tiles would vary according to facilities for making and obtaining them. Probably 1½-inch to 2-inch pipe would cost from six to eight dollars per thousand.

In cutting the drains, it is usual to throw out two furrows in opposite directions as deep as possible. It is then cleaned out about fourteen inches deep with a common spade; the next foot is thrown out with a narrower spade; and the remainder with a spade about six inches wide at the top, and gradually tapering so as to leave the bottom

of the drain just wide enough for a man's foot. The loose soil at the bottom is cleaned out with a narrow scoop, the handle being sufficiently long and so shaped that a man can clean the drains from the top.

In laying the pipes, all that is necessary is to place them end to end as closely as possible. If convenient, it is best to put a piece of turf with the grass downwards over the pipes; though this may be dispensed with if the soil is moist and care is taken not to disturb the pipes in covering them with it. After the drains have been laid and covered a few days, the water comes through *as clear as crystal*, and there is little danger of stoppage from any deposit of sediment, and few if any of the fertilizing elements of the soil are washed out.

There has been much discussion between theoretical and practical men, as to whether the drains should be laid across the natural slope of the land or lengthwise of it, practical farmers for a long time adopting the former and the scientific farmers advocating the latter. There are few at the present time but what think the scientific men are right, and the drains are laid the same way as the land slopes and empty into a main drain, laid with larger tiles, *running across the fall*. This main drain discharges the water into an open ditch, which should always be kept clean, so that the water can run off freely.

The economy of under-draining at a cost of from $20 to $30 per acre, has been much questioned in this country where lands are so abundant and cheap; but all those who have given it a fair trial, have no doubt of its great benefit and of its paying great interest on the capital invested. They say the soil works much easier, is ready to plow much earlier in the spring, and *yields greatly increased crops* with less manure and less labor. We have no hesitation in asserting that there is but little land on which all agricultural crops would not be increased half as much again by thorough under-draining. It is a fact which, though it appears paradoxical, is nevertheless clearly established by experience, that land well under-drained is much dryer in wet weather, and much more moist in dry hot weather, than that undrained. We believe that the general adoption of thorough draining will do much to remove the innumerable insects, blights, and rusts, which now make such fearful devastation on our crops. An old English farmer informs us that he can remember when under-draining was scarcely known in England the crops were more liable to be injured by insects, &c., than they are here at present; but now they are unknown there, and the crops have doubled, which he thinks is owing more to under-draining than any other cause.

MILCH COWS, AND CALVES.

It is impossible to choose a subject of more general interest to the agricultural community, than Milch Cows; for though there is only a portion of American farmers that devote their farms principally to the dairy business, yet every homestead has its cows, and every farmer is interested in their management.

The best time for cows to "come in" is generally considered to be about the middle of April; though where calves are raised for the butcher, it will be profitable to have them earlier; as, being scarce, they sell much better. The period of calving is one of considerable danger, and much care is necessary to keep the cow in a healthy state, and in that condition which will make her most profitable the coming season. Cows of course should never be starved during the winter, but kept in a nice warm yard, having plenty of straw, cornstalks, or hay, regularly given them. If they are not milked, they may be kept in good condition on straw and cornstalks till within six weeks of calving, when they should have a little hay; and as the spring draws near, if not in good condition, a little corn meal, or what is much better, three or four pounds of crushed oil-cake a day, may be given for a week or so previous to calving. It is not, however,

desirable to have the cow at all fat; but as it is often the case that owing to eating a large bulk of comparatively non-nutritious food the cow becomes costive, and inflammation to a greater or less extent ensues, it is advisable to give more *concentrated nutriment;* and oil-cake, besides being more nutritious than any other food given to cattle, is a slight aperient, and keeps the cow in a fine healthy state. It may be continued as long after calving as the farmer pleases — it will do no harm — nothing, in fact, producing more or richer milk. Whether it will *pay* to feed it, we are unable to say. Mangel wurzel being also laxative and very nutritious, are valuable food for cows at this period; and nothing will *pay* a farmer better than to grow a few acres every year for this especial purpose. Ruta baga are good, but are apt to give an unpleasant flavor to the butter. They are not so aperient as mangel wurzel. After the cow has calved, she should have some warm slops and be carefully attended. The first milk should be drawn out of the bag before the calf sucks; and afterwards, if the bag is hard, it is sometimes advisable to get as much of the milk as possible previous to letting the calf suck, so that he may knock on the udder, and well clean out all the milk.

When fatting for the butcher, the calves should always be placed in a dark place and be tied up, so that they can not run about. It is very necessary that they be often well cleaned out and littered with plenty of clean straw. This will keep the calves healthy, clean, and free from lice. In the celebrated cheese county of Cheshire, England, the calves are never suffered to suck the cows at all, but are fed with skim milk and boiled linseed or oil-cake meal, which they are taught to drink out of a pan or pail. We think this is an *unnatural* plan, and the benefits derived by it do not, or at least would not in this country, counter-balance the extra trouble. When designed for rearing, this plan may have its advantages; but the calf at first should undoubtedly be fed with the biestings or first milk, as, being the natural food, it is best adapted for the functions of the stomach and bowels. It is slightly purgative, and cleans out the black fœces which are in the calf when born. After the first week or two the fresh milk may be substituted by skim milk and boiled linseed or oil-cake, which should be given two or three months before the calf is weaned. Nothing pays better than to keep rearing calves *well* the first four months, giving them a good start in life. We would not advise the confinement of rearing calves; for, though it may conduce to laying on fat, the formation of muscles and bones and the general health of the animal is lessened.

Every one knows the great necessity there is of being gentle and kind to cows, so that they may be quiet and peaceful, and not stand trembling in durance vile while being milked. It is this that accounts for the opinion that a cow will give a dairy-*maid* more milk than she will to a man. We think a man, during the milking season, has seldom any business near a cow, his great, rough, hard hands, and still harder heart, rendering him unfit for a good milker; while a gentle, rosy dairymaid, with her kind words, soft hands, and "So, so, my good bossy," seated on a three legged stool, will fetch out the milk till the froth runs over the pail. Cows should be milked regularly the same hours every day, and should have access to water and shelter at all times.

Willows. — There are $5,000,000 worth of willows imported into this country every year from Belgium and France, for making baskets, and for other purposes. They sell for $125 per ton, and the demand is greatly increasing, and is now much greater than the supply. They grow equally well in America as in Belgium, but need low, swampy land, that is fit for nothing else. They need no cultivation at all. In planting the first time, all that is necessary is to stick the cuttings into the soil in the spring. The next fall the first years' shoots should be cut down; and the next year they will come out thick and strong, and yield an abundant and most profitable crop. The common English willow, or osier, is the best variety for baskets.

LARGE CROP OF RUTA BAGA.

We have received a communication on the culture of ruta baga, from John T. Andrews, Esq., of West Cornwall, Conn., which we are sorry the limits of the *Farmer* will not allow us to publish. It is full of valuable information, and affords encouraging evidence of the successful application of skill and science to farm husbandry. Mr. Andrews says: "I devoted my head and hands to the work of agriculture with the full intention of convincing my neighbors that the idea that a collegiate education spoils a man for a farmer, is a popular error. I have succeeded so well that, though this is my second year at farming, I have taken first premiums this fall, at our County Fair and American Institute, on my cattle, sheep, poultry, turneps, potatoes, and ruta baga. I must add, further, lest you should mistake me for a gentleman farmer, that the labor on my little farm is performed almost exclusively by my own hands. For much of the little I have learned of the art of farming, I am indebted to the *Genesee Farmer*, *Working Farmer*, and *Albany Cultivator*, of which I am a constant reader. *To these I owe my success.*"

The quantity of land cultivated with ruta baga was one-fourth of an acre. The soil was heavy and retentive of moisture, but safe from standing water by a gentle descent. It had been for many years a meadow, and yielded but half a ton of hay per acre. It was plowed, manured with twenty loads of manure per acre, and planted with potatoes, *which were a complete failure.* The next year it was plowed again twelve inches deep, and twenty more loads of manure applied per acre. After lying a few weeks, forty loads of manure per acre were spread over the surface and plowed in seven inches deep. It was afterwards plowed and dragged till the manure was thoroughly incorporated with the soil. Furrows were then drawn with the plow, twenty-seven inches apart, in which was spread a mixture of guano from the poultry yard, nightsoil, ashes, and gypsum. The furrows were then turned back over the manure, leaving the ridges twenty-seven inches between. Four or five seeds were then dropped on the ridges in holes about ten inches apart, and slightly covered with the garden rake. When the plants were sufficiently large to be clearly distinguished from the weeds, which were very numerous, the hoe was vigorously applied, destroying all the weeds and leaving one plant in a place. They were sown on the 20th of June and gathered on the 6th of November. The leaves were very large, of a dark green color, reaching from one ridge to the other, completely covering the ground. When gathered they were thrown into heaps of about 100 bushels each, and covered with straw and earth, to remain in the field until needed for use. The crop yielded, by actual admeasurement in a sealed bushel, 416½ bushels, or *one thousand six hundred and sixty-six bushels per acre.* This, at 50 lbs. per bushel, would be 41½ tons of bulbs per acre, besides a large quantity of leaves, themselves valuable food for milch cows, &c. We speak advisedly when we pronounce 41½ tons of bulbs per acre a larger crop than has ever been raised in Great Britain. 25 tons is there considered a first rate crop, and is seldom exceeded.

The quantity of manure which our friend applied appears excessive, and we hope, for the sake of agriculture, quite unnecessary. Twenty loads of good manure to the acre is a heavy manuring for ruta baga, and if to this is added 300 lbs. of super-phosphate of lime, sown with the seed, a good and profitable crop will be obtained. Ruta baga possess great power of drawing their nitrogen from the atmosphere, if supplied with available phosphates and carbon; but if large quantities of nitrogen are supplied in the manure, which was the case in the above experiment, this is employed in the organism of the plant, and its nitrogen-collecting powers are useless.

We hope to hear again from our friend, and trust he will continue to unite science with practice, be as successful in his experiments as in the one just detailed, and, successful or unsuccessful, give his results to the readers of the *Genesee Farmer.*

Condensed Correspondence.

During the last few months we have received a vast amount of useful information from many valued correspondents, which has necessarily been crowded out of our columns. We hope our friends will still continue to write and give us information, which in one form or another will find its way to the readers of the *Farmer*. Especially do we like to hear from practical, keen, observing, thinking farmers. It is by uniting facts furnished by such men and the indications of science, that a true system of agriculture will be formed. We give extracts from the communications that have accumulated on our hands, and shall try to give the greatest amount of information in the fewest possible words.

Butter-Making Experiments.—The experiments on butter-making, detailed in your February number, were made in *cool November*. Mrs. B. is quite certain the result would be different and in favor of the small pans of milk, if the same experiments were to be made in *hot weather*. I hope L. N. will make further trials next summer. R. B.—*Fort Covington, N. Y.*

Thick and Thin Sowing.—Some of my neighbors think that wheat, whether sown thick or thin, will grow about so thick. So last fall I selected three lands as near equal as I could find in the field: the first I sowed at the rate of one and a half bushels to the acre, (my common guage); the second, three bushels; and the third, three pecks. At harvest, that sown with one and a half bushels was the best; the three bushels was too thick and the heads small; and the three pecks to the acre was too thin, *rusted and shrunk*. Alpheus Calvert.—*Reading Center, N. Y.*

To Clean Spring Wheat from Chess, Oats, &c.—I observed an article in the December number of the *Farmer* about washing spring wheat, to free it from oats and foul seeds. I send you another method, which I think is much better, as I have tried both. Take the fanning-mill with the chess-board placed so far up in the shoe that by turning fast the good wheat will drop in the mill, and the oats, poor wheat, and other light materials, will blow away, leaving the wheat cleaner than if it had been in water. This method is one of the best for cleaning chess, &c., from winter wheat for sowing. Seneca Lake.—*Romulus, N. Y.*

Planting Small Potatoes.—I have noticed of late, that the more manure you put on the ground for potatoes, the smaller is your crop; and it is a well known fact, that the largest and best potatoes in the hill are the first to decay. In 1850 I planted half an acre of green sward, plowed in the spring, without any manure, and from necessity used the smallest potatoes I had for seed. I hoed them but once, and gave them a sprinkling of plaster after hoeing. The result was, I obtained from the half acre sixty-five bushels; and at the time of digging (the middle of October) there was not one peck of decayed potatoes among them. Last year I adopted the same course with similar results.

This year I propose to plant, for experiment, in an open woodland and cover with forest leaves, and will apprise you of the result, feeling that whatever interests the mass of farmers as much as this subject, should be looked to and as much light thrown on the subject as possible. A Subscriber.—*De Lancey, N. Y.*

Home-made Guano.—I see by different agricultural publications the anxiety many farmers have of enriching their soil by lime, gypsum, guano, &c., at considerable expense, and at the same time suffering a large amount of the best fertilizing ingredients to be thrown to waste, which would cost them nothing to preserve. In the fall and spring I cart many loads of any kind of soil I can procure free from stone to a heap near my kitchen and wash-house door. I put it up like a coal pit—large at the base and small at the top. The top I make concave, so as to contain half a barrel of water. To this top I place a plank to which slats are nailed to walk up on, and I have all the dish water, soap suds, chamber-lie, meat and fish pickle, and every kind of refuse from in and about the house, carried to this heap. I frequently add a little plaster. After it has been there six months, mix it well, haul it out, and supply its place with another heap. It is a cheap manure, and far exceeds lime, gypsum, or guano; all of which I have used to a large extent. S. John.—*Mount Comfort, Pa.*

MERINO, SOUTH-DOWN, AND LEICESTER SHEEP.—I keep three kinds of sheep, Merino, South-Down, and Leicester. Some time ago I sold part of the flock for mutton. The Merinos brought me $1.50; the South-Downs, $2; and the Leicesters, from $2.50 to $3. The butcher would always pick out the Leicesters, and I found it impossible to sell the others while they remained in the flock. I drew them out and disowned them, and thus was enabled to dispose of the others. The South-Downs were fair, profitable sheep—about the medium in Western New York. I can recommend the Leicesters; not because I have them to sell, but for the reason that they are more healthy, look better, shear more wool, grow faster, and pay better. The lambs sell for a higher price and much earlier than the other breeds, in Western New York. A YOUNG DUTCH SUBSCRIBER.—*Royalton, N. Y.*

SOAKING CORN IN A SOLUTION OF HARTSHORN.—A few years since, hearing a neighbor speak of the great value of soaking seed corn in a solution of hartshorn previous to planting, I was induced to try it, and have met with perfect success. I put two ounces of the hartshorn, costing twenty-five cents, to a peck of corn, cover the corn with water and let it stand six hours, planting as soon as possible, rolling it in plaster as I plant.

Two years ago we had a dry time just as our corn was nicely up, and all corn fields in this region looked yellow and sickly, while my corn planted as above kept of a dark green color and grew well till harvest, when I had 100 bushels of corn per acre, which we consider a good crop here. My neighbor who planted in an adjoining field, on much better land and well manured, but who did not use the hartshorn, had a very poor crop. I induced a neighbor to use it last year, and he obtained equally beneficial results. WARREN EKA.

EXPERIMENT WITH POULTRY.—I have been keeping an account with my poultry the past year, to ascertain whether any profit could be derived from them. I commenced on the 1st of January, 1851, with twenty-three hens and two ducks. The hens were of the *Poland* variety, but not full blooded, and were mostly two years old. They were not confined, except a few weeks in spring and summer. I allow them two quarts of corn per day, except through the last of summer and first fall months, when they require less. The hens commenced laying about the middle of January and laid till November. The account from January 1, 1851, to January 1, 1852, is as follows:

Dr.		*Cr.*	
To 19 bushels 3 pecks corn,	$15 59	By 2685 eggs, worth, at market prices,	$32 02
" 111 eggs used for sitting,	1 36	" 25 chickens raised	5 31
" Indian meal for chickens,	1 64		$37 33
	$18 59	Balance in favor of poultry,	$18 74

I commenced killing off my hens in July, and when they ceased laying in November I had but eleven. It would be fair to set down the average number for the year at eighteen. The two ducks layed 142 eggs, which leaves for the eighteen hens 2543 eggs, or an average of 141 eggs each, besides raising chickens. S. B. SMITH.—*Saugerties, N. Y.*

GUANO ON CORN.—Reading in the *Farmer* of the value of guano as a fertilizer, I ordered half a ton from Philadelphia. When it arrived, I turned to the *Farmer* for information how to prepare and apply it, but could find no directions there. I then applied to the merchants who sold it; but they were ignorant on the subject. Here, then, was a dilemma: the time for planting had arrived, the guano was on hand; but how to apply it, was the perplexing query. I had learned it was necessary to pass it through a seive. I got a No. 6 and went to work, but soon gave it up, the odor and dust being exceedingly disagreeable. I had prepared my seed for planting, all of which was of a kind known here as the *Red Cob*, except a single ear of *Oregon*, which I had procured from Philadelphia, and for which the farmers in that vicinity paid $1.50 per bushel. This seed I planted first, and being desirous of making the best of it, gave it about half an ounce to the hill of the sifted guano previous to covering. The rest of the field of twelve acres was planted without the application of any manure at all. This came up in about six days; but my Oregon, which I expected to appear first, showed no symptoms of breaking ground. I waited ten days, and then commenced making search for the hidden treasure, which on finding appeared to be in a state which I can only describe as between a fry and a stew. Some of it eventually came up, made large stalks, and ears not one of which matured. Thus I lost my seed, labor, and guano. When the corn on the remainder of the field was up about six inches, I applied a mixture of equal parts of guano and coal ashes, about one-third of a gill to a hill. The soil was poor and had never yielded fair corn crops before; yet I obtained 800 bushels of

very superior corn, with scarcely a soft ear to a wagon load. Last year (1851) I dressed twenty acres in the same way, at the same rate, and had as the result 1300 bushels of ears—a larger quantity than has been raised on the farm for the last twenty years in all.

I am not sure that the manner I adopted of applying the guano is the best. It is evident from the experiment made with the *Oregon*, that its immediate application to the seed is injurious, though applied in smaller quantities it might not prove so. On vines, (cucumbers, squashes, melons, &c.,) applied near the stem in the hill, the effect was astonishing. A SUBSCRIBER.—*Bear's Gap, Pa.*

BEES.—The greatest difficulty I have with bees, is their robbing each other. To prevent it I have tried several experiments, but have failed in all except this: If hive A attacks hive B, change them—put A in the place of B, and B in the place of A; and if three or four should be in the fuss, change them all in the same way. By this means I have never failed to stop them in less than half an hour.

In regard to the moth I have but little trouble. I take corn meal and make a paste with strong salt water, spread it just the bigness of the hive half an inch thick, and place the hive square on the dough, making it all tight except the entrance, and this the bees will guard against the miller, which lays her eggs under the edge of the hive; and with this preventive I have no trouble with the moth. The hive should not remain in this condition after it is filled by the bees, but should be raised on blocks one inch thick. This gives the bees fresh air, and prevents the comb from melting down, which frequently happens in extreme hot weather. In this way they will also stand the winter better than if set close down, when their breath forms a frost which melts and runs down the hive, freezing when it strikes the board at the bottom. In this way I have lost several good swarms, with thirty to forty pounds of honey in the hive. IRA YOUNG.—*Conquest, N. Y.*

CULTURE OF TOBACCO.—We have received an excellent article on this subject, from MR. H. N. HOWE, Marcellus, N. Y., from which we give such facts as throw additional light on the subject:

Having prepared the beds, sow the seed (a table-spoonful to thirty square yards) if possible just before rain on a *still day*, or you may find the plants in some other place. Keep the beds free from weeds. It will answer to sow the seed from March till the first week in May. Any land that is natural for corn is good for tobacco. To ensure a large crop of either, any man knows that the ground must be well prepared and manured before planting. Mark the ground from three to three and a half feet one way and two and a half to three feet the other: this is for Connecticut Seed Leaf; the small kinds will bear to be thicker. Some think the plants should be three to four inches high before setting; but this I think a mistake. I commence setting when the plants are no larger than a fifty cent piece, and I invariably have good luck with my early set plants. A plant five inches high before setting will generally die to the ground; whereas a small one, if well set, will scarcely mind the removal. It will do to set in missing plants till the first week in July. The cultivator may be used as long as it will pass without breaking the leaves. The plants require no hill: they should be hoed two or three times; the first as early as practicable. When the plants show the buds fairly, they can be pinched off, leaving from sixteen to twenty leaves on a stalk; late plants must be topped lower. After topping, the suckers must be kept off; the cleaner the better for the growth of the plant, and the convenience of handling when stripping. When the leaves become spotted with yellow, the plant is fit to cut. It is best to have the dew off before cutting; and after rain the plants should not be cut for a few days, as the rain washes the gum from the leaves. When cut, the plants must be laid carefully on the ground to wilt. If the sun is hot, care must be taken or the plants will burn, and the places burnt are spoiled. In hanging, fasten the twine around the butt end of the first plant, fetch it across the pole, give it a turn round the next plant, and so on to the other end of the pole. The poles, or whatever is used to hang them on, ought to be sufficiently large to prevent the plants from pressing each other too much, as in such a case they are apt to spoil before they get sufficiently wilted to hang independently of each other. When the leaves are all cured and the middle stem of the leaf has become dry, and there come a few damp days, the plants will be moist and can be taken down without breaking the leaves. They should be laid in piles of two tiers, the tops together. After lying a few days it can (if the weather is not too dry) be stripped and done up in hands and packed away till ready to be boxed. Sweating can be done before or after stripping. If done before, it must be closely watched or it will become too hot and damage. Care should be taken in every operation to not break the leaves. The crop ranges from ten to twenty hundreds per acre.

AGRICULTURAL PRODUCTIONS, AS SHOWN BY THE CENSUS OF 1850.

State.	Acres of land improved.	Value of farming implements and machinery.	Value of live stock.	Wheat, bushels of.	Indian Corn, bushels of.	Tobacco, pounds of.	Ginned Cotton, bales of 400 pounds each.	Wool, pounds of.	Wine, gallons of.	Butter, pounds of.	Cheese, pounds of.	Hay, tons of.	Hemp, dew-rotted, tons of.	Hemp, water-rotted, tons of.	Flaxseed, bushels of.	Maple sugar, pounds of.	Cane sugar, hhds. of 1,000 pounds.	Value of homemade manufactures.
Maine.....	2,019,593	$2,363,517	$9,831,488	367,980	1,741,715	..	..	1,366,866	306	8,488,234	2,201,105	794,780	..	..	362	87,541	..	$510,993
N. Hamps're	2,251,388	2,314,125	8,871,901	185,658	1,573,670	50	..	1,108,476	35	6,977,056	3,196,563	598,854	..	..	94	1,292,429	..	393,455
Vermont ...	2,322,923	2,774,959	11,292,748	493,666	1,625,776	..	..	3,492,087	140	12,128,095	6,755,006	763,579	..	..	307	5,159,641	..	261,589
Massachu'tts	2,127,924	3,178,809	9,619,964	29,784	2,326,167	119,306	..	576,736	4,122	7,825,337	7,124,461	645,749	5	..	72	768,596	..	210,076
R. Island...	337,672	473,385	1,466,636	39	516,133	..	..	111,937	842	1,066,625	296,748	73,353	..	..	..	..	..	26,098
Connecticut.	1,734,277	2,043,026	7,353,996	40,167	1,996,462	1,383,932	..	512,529	3,346	6,620,579	4,512,019	499,706	..	..	9,775	37,781	..	188,995
New York..	12,285,077	22,217,563	74,672,356	13,073,357	17,844,808	70,222	..	10,021,507	6,483	82,043,823	49,785,905	3,714,734	81	20	53,824	10,810,764	..	1,277,170
New Jersey.	1,770,337	4,267,124	10,678,264	1,508,216	8,605,396	..	..	375,932	517	9,070,710	500,819	429,119	..	..	12,353	5,886	..	110,350
Pennsylv'nia	8,619,631	14,931,993	42,146,711	15,482,191	19,707,702	857,619	..	4,784,367	23,339	40,554,741	2,395,279	1,826,265	173	686	43,627	2,218,644	..	755,104
Delaware...	524,364	471,385	1,718,386	466,784	2,888,896	..	..	52,887	85	1,684,867	3,157	30,159	..	16	888	..	..	32,809
Maryland...	2,797,905	2,463,443	7,997,634	4,494,680	11,104,631	21,199,281	..	477,438	2,099	4,206,160	3,925	145,070	68	..	2,816	47,740	..	111,828
Dis. Columb.	17,083	40,220	71,573	17,370	65,280	15,000	..	..	863	14,869	..	1,974	..	..	..	..	..	75
Virginia....	10,150,106	7,021,658	33,607,962	14,516,950	35,538,582	56,516,492	2,767	2,850,909	4,280	11,126,795	434,850	370,177	3,450	1,149	53,333	1,223,905	..	2,156,073
N. Carolina.	5,443,137	4,056,006	17,387,108	2,147,899	28,286,999	12,058,147	98,028	915,289	10,801	4,144,258	95,043	145,180	13	478	38,183	27,448	½	2,008,884
S. Carolina.	4,074,855	4,143,709	15,060,015	1,066,278	16,272,308	13,235	300,901	487,243	3,680	2,979,975	4,810	25,427	..	..	11	200	150	909,546
Georgia.....	6,323,426	5,901,050	25,727,408	1,085,784	30,428,540	420,123	494,023	988,802	664	4,640,074	46,391	23,427	..	..	585	50	1,273	1,888,093
Florida.....	349,423	675,885	2,945,668	1,222	1,993,462	982,584	45,078	23,235	10	375,853	18,324	2,620	..	..	..	..	47,411	74,362
Alabama....	4,387,088	5,066,814	31,558,686	292,429	23,485,966	163,605	560,360	637,829	14	3,961,592	30,423	31,801	..	70	54	473	28	1,890,258
Mississippi..	3,489,640	5,759,738	19,303,593	215,181	21,836,154	48,349	494,774	556,057	301	4,388,112	20,314	12,517	2	..	21	110	278	1,165,195
Louisiana ..	1,567,998	11,326,310	10,983,508	84	10,915,051	23,922	163,034	105,393	..	685,136	1,148	20,672	..	..	..	260	262,486	138,773
Texas	635,913	2,095,308	10,263,086	42,448	5,796,735	60,770	55,945	122,118	94	2,319,574	92,018	8,327	..	..	16	..	7,017	265,526
Arkansas...	780,333	1,594,941	6,728,254	193,902	8,857,236	224,164	64,987	181,427	10	1,854,104	28,440	3,924	..	145	695	8,925	..	644,928
Tennessee ..	5,057,057	5,351,178	29,134,193	1,638,470	52,137,863	20,144,380	192,635	1,340,333	204	8,130,686	179,577	72,942	405	535	19,405	159,647	..	3,168,116
Kentucky ..	6,068,633	5,388,092	29,898,386	2,184,763	58,922,788	55,765,259	1,669	2,246,168	4,202	10,115,267	228,744	115,296	37,168	2,685	80,458	388,925	..	2,487,493
Ohio	9,730,650	12,716,153	43,276,187	14,967,955	59,788,750	10,480,967	..	10,089,607	44,834	34,180,458	21,350,478	1,360,636	628	464	185,598	4,521,643	..	1,696,601
Michigan ...	1,923,582	2,764,171	8,005,429	4,918,700	5,620,215	2,225	..	2,047,364	1,443	7,043,794	1,012,551	394,717	40	14	1,186	2,423,897	..	354,936
Indiana	5,019,822	6,748,722	22,398,965	6,625,474	52,887,564	1,035,146	5	2,502,763	13,004	12,748,186	666,986	402,791	794	775	35,803	2,921,688	..	1,647,200
Illinois	5,114,041	6,349,826	24,817,954	9,433,963	57,179,283	844,129	8	2,129,139	2,343	12,605,554	1,283,758	586,011	1,099	1,828	11,873	246,078	..	1,218,211
Missouri	2,911,422	3,977,449	19,764,672	2,943,849	35,709,042	17,038,364	..	1,635,182	10,193	7,762,124	201,597	116,284	17,061	4,014	13,499	171,943	..	1,662,749
Iowa	814,178	1,202,978	3,602,769	1,442,074	8,475,027	2,012	..	363,398	420	1,933,128	198,444	84,598	1,200	80	2,182	70,680	..	202,533
Wisconsin ..	1,011,308	1,701,047	4,594,717	4,292,208	1,983,378	768	..	243,065	68	888,816	440,961	295,927	..	100	834	661,969	..	57,506
California...	34,312	88,593	3,456,725	98,282	90,082	1,000	..	4,800	..	705	150	2,038	..	..	..	..	..	2,500
Minnesota ..	5,035	15,981	103,859	3,422	16,665	..	..	260	..	1,100	..	2,069	..	..	..	2,950	..	..
Oregon	185,357	183,403	1,875,989	228,882	2,928	32	..	29,596	..	211,734	36,030	378	..	..	..	..	..	..
Utah	15,219	78,495	533,951	103,441	9,144	..	..	8,897	..	74,064	32,646	4,288	..	..	5	..	..	1,304
New Mexico	161,296	78,217	1,504,497	196,573	355,795	1,118	..	32,641	2,053	101	5,887	..	..	..	..	..	..	6,031
Total.....	112,042,000	151,820,273	552,705,288	104,799,239	591,586,053	199,532,494	2,474,214	52,422,797	141,295	312,202,286	108,184,585	13,605,384	62,182	13,059	567,749	32,759,263	318,644	27,525,545

CULTURE OF THE GRAPE, AND WINE-MAKING.

BY L., OF IRONDEQUOIT, N. Y.

You gave in the January number of the *Farmer* much information on the science of grape cultivation and the making of wine. For the purpose of making good wine, and that which will mature itself in due time, it is of much importance to procure the right kind of grape, well adapted to the climate. Without detail on the selection and cultivation of a suitable wine-grape, suffice it to say that your correspondent, Mr. BLAKELY, of Roxbury, Conn., in his excellent article on "Wine-Making," has set forth very fully, and with much practical knowledge, the selection and propagation of the grape for wine-making. I would by no means depreciate the utility of the different modes of propagation proposed by Mr. BLAKELY, for they are among the best means of obtaining vines on a limited scale; but as no allusion was made to any other practice, in his communication, I beg leave to state that by far the most rapid and cheap way to multiply grape vines is by cuttings of the last year's growth; and it is the principal mode practiced by nurserymen in obtaining vines for their extended sales. Indeed, I suppose there may be 3000 cuttings, with three joints each, placed on a quarter of an acre; and if the soil be deeply worked, with good after culture, they will give more than half their number of well rooted vines, suitable for resetting after two years' growth.

Your paper is too valuable for me to occupy its pages with a long article, but I will venture to give a short statement of what we make wine of in Irondequoit, and how it is made.

The *Clinton* grape, as known in these parts, I consider the best adapted to making a high colored wine. This grape has rather a small berry, but is very hardy, and always matures itself in good season. I have a few barrels of wine made from vintage 1847 and '49, which prove to be of the very best quality with which I am acquainted. The greater proportion of this wine was made from the *Isabella* grape, combined with the *Clinton*. I may also state that it is selling as a choice article for sacramental purposes at two dollars per gallon.

When the grapes are fully ripe, and have been removed from the vineyard to the place assigned for making the wine, they should be assorted and all the decayed and green ones removed; then put them into a barrel, about a bushel at a time, stems and grapes, and pound them thoroughly till all the grapes are mashed. Continue the process till all is finished that you wish to make up at that time. The next process is to press out the juice or must, and to every gallon add two pounds of sugar, and stir it thoroughly till the sugar is all dissolved. After treatment is, to put it into barrels for the purpose of fermentation, there to remain, with frequent filling up to supply the waste, till the pomace is all fermented off. A supply of the must should be on hand for that purpose. The barrels should not be bunged up until the fermenting process is about complete, and by placing your ear to the bung it may be easily decided. If in April or May the wine should be found clear, it may be racked off; but if unsettled, it should remain till fall. If the wine is found to be just what you want it at the time of racking, bottle as much as you choose; but if not, let it remain on the lees, and the article will increase in character and strength.

The above mode of making wine I have practiced many years on a small scale; but for a more extended business in wine-making, the Ohio practice would be more complete.

I would remark that no grapes raised in this part of the State contain sufficient sugar or saccharine matter to make good wine without the addition of sugar.

EXPERIMENT WITH POTATOES.

BY E. HAMMOND, OF MANORKILL, SCHOHARIE CO., N. Y.

I AM trying to pursue the "most healthy and honorable—the most natural pursuit of man." I reside on that high and elevated tract of mountain land on the western slope of the Catskill range, on the eastern sources of the Schohariekill, one of which passes through my farm. The soil is a dark clay loam. The stones are red, dark grey, and light grey—flat and broken. I have been a constant subscriber to some agricultural journal for the last seven years. I desire to know why a crop is sometimes first rate and sometimes almost a failure. I desire to move with some certainty in my pursuit.

In the April number of the *Genesee Farmer* for 1851 I read an excellent article on that almost worn out topic, the "Potato Malady." It was very interesting to me. I have been experimenting on that crop for some years. I broke up a good sod for potatoes as soon as the frost was out and the ground settled. I did not plant till June 5th. The soil was in fine condition. I measured off a piece eight rods long and four rods wide to experiment upon. I planted 1st, Two rows of Carters, thirty-six hills in a row, and applied four quarts composition (three quarts leached ashes and one quart plaster) to each row. 2d, Two rows Carters; applied two quarts plaster to each row. 3d, Two rows Carters; three quarts unleached ashes and one quart plaster to each row. 4th, Two rows Mercers; nothing applied. 5th, Two rows Mercers; eight quarts of leached ashes to a row. 6th, Two rows Mercers; half a bushel of charcoal (coarse) to each row. The application was made on the potatoes in the hill before covering; nothing more applied. They were dug the last week in August.

Result.—No 1, Yield—66 quarts good; 4 quarts unsound, but not rotten. No. 2, 50 quarts perfectly sound; none unsound. No. 3, 54 quarts sound; 2 quarts unsound. No. 4, 44 quarts sound; none unsound. No. 5, 68 quarts sound, but a number of them somewhat discolored—saved for seed; 18 quarts rotten and unsound—many so rotten as hardly to hold together till measured. No. 6, 61 quarts good; 12 quarts rotten and unsound.

Now for a few facts of personal observation on the above, then a few queries, and I have done:

I observed that wherever the ashes and tuber came in contact, there was rottenness on that side of the tuber in every instance. I dug them myself with care, and my observations were as close as I was capable of making—perfectly satisfactory to myself at least. Where I applied gypsum alone, I noticed that where the gypsum and tubers came in direct contact, there was no rot or decay in any instance. I applied a gill of plaster to a hill for a few hills adjoining the above experiments. There was no increased vigor to the vine, nor apparently any increased product of potatoes, but the potatoes were perfectly sound. The vines of the 5th experiment looked beautiful and vigorous, and could be distinguished for twenty or thirty rods, and I expected great results. I expected that the charcoal in the 6th experiment would result in a rather good yield from its quantity, but I was somewhat disappointed.

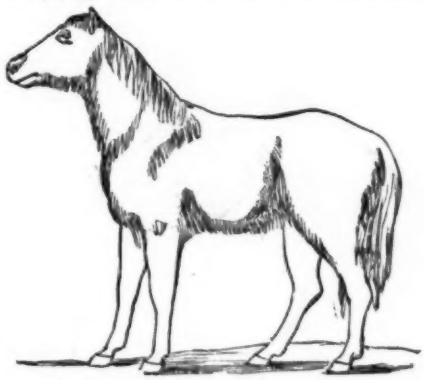
Has the result of unusual rottenness following the application of ashes *directly on the seed* been observed by others? and would the result have been different had the application been made *on the hill*, so as not to come in direct contact with the tubers? Would gypsum *in* the hill and ashes and gypsum *on* the hill change the result? It appears to me that it would.

I am now done for the present on the potato experiments. I shall make further experiments the present year.

HORSES FOR THE FARM.

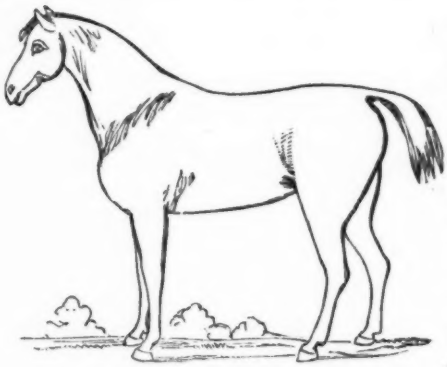
Notwithstanding the inroads made upon horse-labor by our great railroad system, the horse continues to be, and will continue to be, one of the most important of domestic animals. For the past year or two the price of horses, and especially *good* horses, has been advancing. Indeed it is no easy task now to get a pair of working horses combining strength, speed, hardiness, and other important qualities. Horse-breeding we believe has been, and is now, conducted in a most unskillful and deplorably careless manner. We may station ourselves on a road leading to one of our large cities, where two or three hundred teams pass and repass in a day, and out of the whole number we venture to say that one span of good farm horses — say sixteen hands high and weighing about 1400 lbs., well proportioned, sound, strong, and hardy, — can not be selected. We have spent some time in looking up good horses, and therefore speak from experience. The majority we find to be long-legged, long-backed, narrow-chested animals, fit only for the road before a light carriage. A man having half a dozen of them at hard work, would require a veterinary surgeon on his own establishment. Where we do find any considerable degree of strength and robustness, we find also excessive coarseness and clumsiness. We admit some exceptions, but they are few and far between. Light, active, sprightly carriage horses, and fast goers, are not scarce. The fact is, our breeders of horses have been aiming at speed too much. The immoral race-course is ruining our horses, filling the country with a mongrel race absolutely worthless.

It is time that this matter should be urged upon the consideration of our farmers who make it a part of their business to breed horses. We know nothing about the profits of the business, but we know very well that if it pays to raise a horse that at four or five years old can scarcely be sold for $100, it will pay to raise one that will sell readily at the same age for twice that amount. With a good stock on hand, it is much easier and cheaper to raise a good horse than a bad one. The improved system of farming which is now being put in practice will require better horses, and farmers will find out soon that it will be much better to have one span of horses than two. How common it is every where to see four horses performing *badly* what two ought to do *well*. The time is at hand when the farmer will consider it economy to give $400 for a pair of horses, instead of $200. Farm carts will soon be introduced extensively; and with them a good, heavy, active horse, will do more work in a day than a yoke of oxen in two; but a light legged horse is of no use in a cart.



OUTLINE OF THE WILD TARTARIAN HORSE.

Much can be done to improve our present race of horses, by judicious breeding. Place a mare having some desirable points with a horse whose prominent developments are such as, combined with the good parts of the mare, you wish to obtain in the foal; and in this way, if the mare is not too old, and is kept warm and comfortable during winter, doing little work, and the foal be never starved when young, a horse may be expected that will amply pay for the extra expense and trouble, costing no more to keep than one not capable of doing half the work.



OUTLINE OF THE MODERN HUNTER.

OUTLINE OF THE HEAD OF THE ARABIAN HORSE.

OUTLINE OF THE HEAD OF THE HUNGARIAN HORSE.

The power which man possesses to improve different races of animals, is well illustrated by the difference between a wild Tartarian horse and a modern English Hunter, or the horse as he was and as he is. The large, heavy head, angular bones, rough and shaggy coat, and coarse, heavy legs, have given place to a graceful form, small intelligent head, arched neck, slanting shoulder, clean and nimble legs, showing that mind has been at work moulding the plastic frame which nature has given, into one better fitted for the requirements of man. Further: an Arabian horse, brought up amidst and treated as one of the family, the instincts of attention and understanding daily cultivated and strengthened; exhibits a head which for intelligence and beauty is unequalled: while the Hungarian horse, removed from man's sympathy and care, has a heavy, sullen, unimpassioned head, in every way the contrast of the intelligence seen in the Arab's. This is accomplished—not in a day; but is the work of ages. Yet, when a superior breed is obtained, nothing is easier than to perpetuate or improve it, no fact being better established than that the offspring inherits the form and peculiarities of *both* parents. In this fact lies the grand means of improving not only our present breeds of horses, but of all farm stock.

The object of these remarks is to introduce a notice of the finest specimen of an agricultural horse that the world can produce at the present time. The Suffolk horse, or "Suffolk punch," has long been celebrated in Norfolk and Suffolk, the finest agricultural districts in England. The breed we believe is no longer in its purity, having been greatly changed by crossing; yet at this day they have no equal. We had the pleasure of seeing the magnificent display at the great Windsor show last summer, and no animals on the ground interested us so much as these noble Suffolk horses. A prize of £30 ($150) was offered for "the best stallion of any age for agricultural purposes," and this

horse took the prize in a competition never before equalled in England, or perhaps in the world. Look at his compact, strong, and yet graceful form. There is nothing of your stupid, clumsy "Samson" about him. His movements are as active and graceful as a "full blood," yet his deep shoulders are made for the draught. It is said in Eng-

A SUFFOLK STALLION.

THE PROPERTY OF MR. THOS. CATLIN, OF BUTLEY, NEAR WOODBRIDGE, SUFFOLK, FOR WHICH THE FIRST PRIZE OF £30 WAS AWARDED AT THE MEETING OF THE ROYAL AG. SOCIETY OF ENGLAND, HELD AT WINDSOR, JULY, 1851.

land that a Suffolk team will do a greater day's plowing, and return home in better condition at night, than any other of the powerful English farm horses. Some very injudicious importations of horses have been made to this country. Will not some of our horse men import this stock? They would confer great benefits on the country by so doing.

Horticultural Department.

CONDUCTED BY P. BARRY.

FRUIT ROOMS.

Every year's experience adds importance to the inquiry concerning the structure of fruit rooms. The extensive cultivation of the pear gives it special interest at this time, for pears can not be so safely kept in cold cellars as apples. But we have reason to believe that large quantities of apples are annually lost by bad keeping. Cellars under dwellings are generally damp to some degree, and warm, besides being occupied with vegetables and other articles that communicate impurities to the atmosphere, and affect the flavor if not hasten the decay of fruits.

The winter of 1850–51 was somewhat unusually mild, and people complained in all directions that their fruit "never kept so badly." The past winter has been remarkably cold, and we hear it said all around that "fruits keep unusually well." We know this to be the case. We had brought us early in the winter, by a friend, a barrel of favorite apples in a very bad condition, apparently in a half decayed state. We concluded they were not worth attention, and left them headed up in a dry, cool room, where the thermometer was seldom more than two or three degrees above the freezing point. We opened the barrel two months afterwards, and found they had made not the least progress in decay—the cold completely arrested it. In the same room we have several barrels of sound apples, placed there in November; and on examination now, in March, are so perfect that not half a dozen specks, indicating decay, are found in a barrel. The same varieties in a warm cellar have decayed much. We have even been able to keep autumn apples and pears sound till February, in consequence of the dry and excessive cold winter. This affords indications that may be turned to good account, viz: that a low, steady temperature, with dry atmosphere, are the chief requisites for a fruit room.

In a late number of the English Gardeners' Chronicle, Mr. Robert Thompson gives the following description and plans of the fruit room of a gentleman near London, who has for several years exhibited pears in fine condition at a season when the same varieties are generally gone. It illustrates the leading principles to be observed in building a fruit room; but it must be remembered that in our northern States at least, greater precautions must be taken to prevent freezing. Thick walls with air spaces, or filled with some non-conducting material, and thick floors, &c., are among the essentials in this regard. The Hon. M. P. Wilder, of Boston, writes in the Horticulturist—

My fruits are keeping admirably in the new fruit room. This room happens to have been situated and constructed so much like Mr. Morrison's, (of which you have seen the drawings and description in the Gardeners' Chronicle,) as to be almost a fac-simile of his. The walls of mine, however, are filled in with charcoal and sawdust.

The *Beurre Diel, Vicar of Winkfield, Excellentissima,* and other autumn pears, are now in as perfect condition as when gathered from the trees, and so they will remain till the warm weather of spring approaches. I shall then try some of them in the non-conducting boxes, where I think they may be kept till summer. I have by a similar process, preserved some varieties till July. Mr. Morrison has no new principle. All that is necessary is to obtain a low temperature during the warm weather of autumn, and to preserve this equilibrium. This being attained, there is no difficulty whatever. When the severe weather of last month occurred, my fruits were removed from the shelves and packed in boxes, with a thin layer of clean rye straw between each tier, the tubes of the straw containing air enough to correct mildew and damp. The boxes are now piled on one side of the room, and covered with hay about three feet in depth.

My experiment was suggested by the bad effects of moisture and warmth in my old fruit cellars, under my dwelling house, and the same difficulty exists with rooms on the ground floor of buildings. I therefore resorted to the other extreme—a cool and dry chamber on the north end of my barn, the location of which you know, (and like Mr. Morrison's,) over the carriage room. I am now quite

satisfied that we have at last ascertained the proper location for a fruit room; namely, a cool upper apartment, with lined non-conducting walls. M. P. W.

DESCRIPTION AND PLANS OF MR. MOORMAN'S FRUIT ROOM.—The room was not originally constructed for a fruit room; but, by a little adaptation, Mr. MOORMAN has succeeded in rendering it a most excellent one, as is proved by the prizes awarded for the productions exhibited from it,—not in any one year, but repeatedly, year after year. It is a partitioned-off portion of a loft which extends over a coach-house and stables, and is that part which is above the coach-house. It was originally fitted up for a harness room, the walls, as is usual in such places, being lined with wood. The roof is slated. The range of building is detached, and faces the southwest.

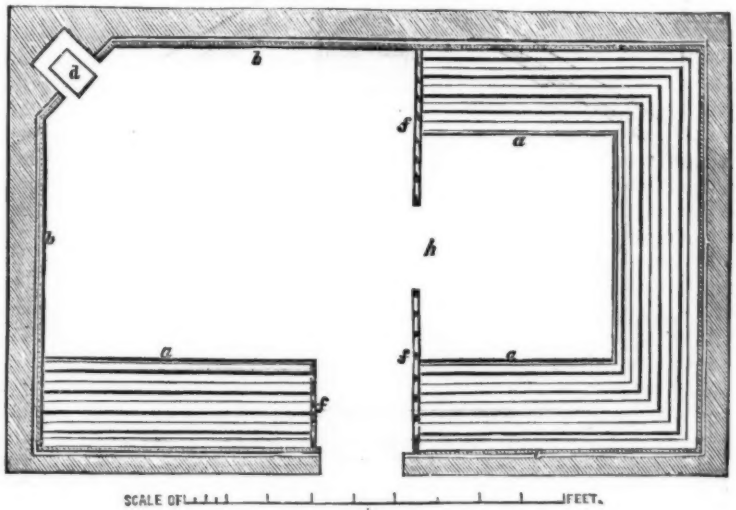


Fig. 1. PLAN OF MR. MOORMAN'S FRUIT ROOM.

It will be observed that there is a cavity, *c*, between the boarding and walls. This, I believe, is an important circumstance, and so is the wooden lining, because air and wood are known to be slow conductors of heat. The ceiling on the north side is double, and the floor is wood above a ceiling. We may therefore conclude that a uniformity of temperature in the interior of the room is insured to a considerable extent. There is a small stove, *d*, but it is seldom used, and never with the view of warming the air of the room, unless the temperature is actually below freezing. The fruit is therefore kept cool. The swing-window, *e*, is occasionally a little opened; but it is at all times covered with a roller-blind, so that the fruit is kept in the dark. A little fire in the stove, air being freely admitted by the window at the same time in a dry day, is useful for speedily removing any damp which may arise from the fruit. The shelves, *a*, *a*, have a layer of clean-drawn straw laid across them; on this the fruit is placed singly.

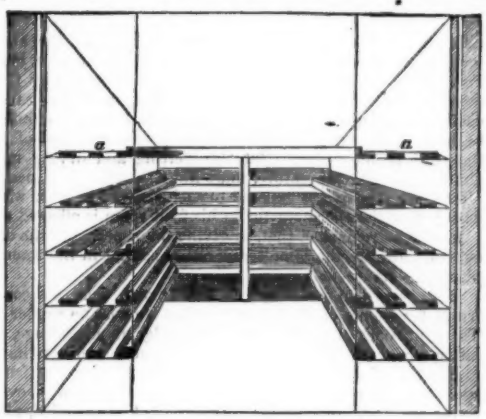


Fig. 2. INTERIOR VIEW.

From a consideration of all the above details it may be inferred, that if a fruit room be built over a place where there is a free circulation of air, its roof double ceiled, the walls lined with wood, a cavity being left between these two, it will possess the essential properties of the one under consideration. The more important principles necessary to attend to, with regard to the long keeping of fruit, are

uniformity of temperature, coolness, and darkness. If the temperature is uniform, there can be little or no deposition of moisture on the surface of the fruit; but if the air of the room should be, say 10 degrees warmer than the fruit, then the relative coldness of the latter will cause a condensation of the moisture contained in the air in contact with the fruit, just as a cold glass becomes dewed over when brought into a warm atmosphere. If the air is indeed very dry, then a proportionately greater

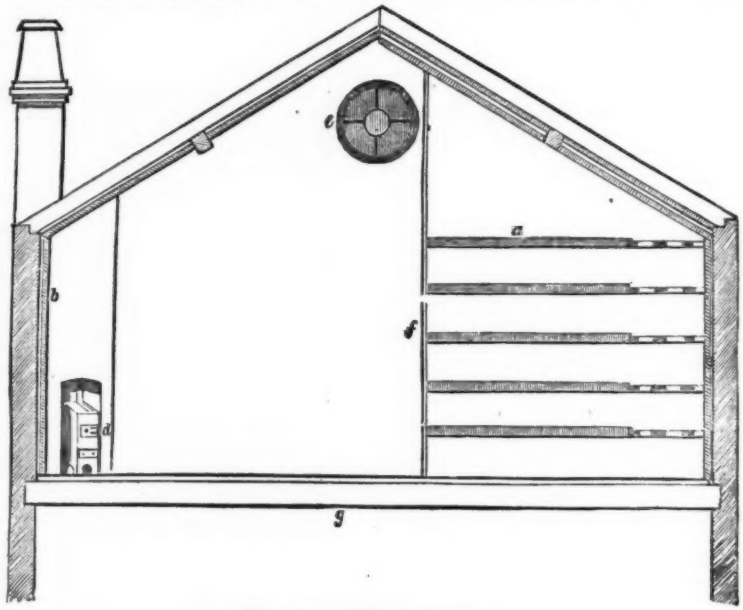


Fig. 3. LONGITUDINAL SECTION.

Explanation of the letters. — *a*, Shelves made with battens, 1½ inch wide and 1¾ inch apart. *b*, Close boarding around the sides of the room. *c*, Air space between the boards and the wall. The roof has also an air space on the north side between the two plaster ceilings, as shown on the section. *d*, Stove. *e*, Circular window hung on pivots, and fitted with a roller-blind. *f*, Partitions of open work similar to the shelves. *g*, Coach-house under fruit room.

difference of temperature is necessary to produce the above effect; but in winter the hygrometer seldom requires to be cooled more than a few degrees before it indicates a deposition of moisture. Fruits with smooth, glossy skins, in close contact with the cold substance beneath them, are those most profusely covered with moisture from the above cause. In russeted varieties, their dry, rough coats serve as non-conductors of heat, and hence less moisture is deposited on them. When the air becomes colder than the fruit, a contrary action—that of evaporation takes place, and the surface of the fruit becomes dry. But this wetting and drying must prove very injurious; while its cause, alternations of temperature, must likewise affect the specific gravity of the juices of the fruit. Mr. MOORMAN's fruit is not exposed to such vicissitudes; for when the weather becomes frosty, it is several days before the thermometer in his fruit room is affected as much as one degree.

It may be remarked that, in giving air, a period of the day should be chosen when the thermometer outside indicates the same temperature as that in the room. No deposition of moisture can then take place in consequence.

With regard to coolness, it is well known that this condition is favorable to the long-keeping of fruit; for we act on the contrary when we wish to render any variety fit for use before its usual time. The fruit room in question must be cooler on an average, than if it had been on the ground; for the latter, under a building particularly, is much warmer than the air in winter.

Light accelerates the maturity and ultimate decay of fruit exposed to its influence. If the soundest specimens are picked and placed opposite a window, they soon become much inferior in appearance, compared with those from which the light is excluded, all other circumstances being the same. In Mr. MOORMAN's fruit room, the light is excluded by a blind, even when air is given.

By such arrangements as those above detailed, Mr. MOORMAN keeps the *Marie Louise* in fine condition till after Christmas. He possesses a selection of the best varieties of pears, which he grows chiefly on espaliers, which are well managed by his gardener, Mr. TUCKER, in the Clapham-road. He had some remarkably handsome specimens of the *Winter Nelis* in his fruit room in January, much larger

than that excellent variety usually grows. We have also seen very large specimens of the *Marie Louise*, grown at his seat at Box Hill, in Sussex. The tree which produced them is trained against the gable end of a barn, about a quarter of a mile from the sea, and this tree is exposed to the strong sea-breezes from the southwest. It was planted in good soil, and a spring below it was discovered when digging the hole for the compost, previous to the tree being planted.

HINTS FOR THE SEASON.

April, throughout a large portion of the country, is the busy month of horticulture. *Grafting* may be continued, especially of apples and pears, until the leaves begin to expand, if the scions have been cut in season and properly kept. Cherries and plums should have been done last month.

Transplanting may be continued as long as trees may be obtained in good order. It often happens that persons residing in the south and west can not obtain their trees from the north until the planting season is past with them; but as long as the trees to be planted are in a dormant state, planting is safe. We plant trees successfully here as late as June, when they have been retarded by being kept out of the ground a long time, as when imported. The month of May is the best time in the year to plant evergreens.

Dahlias, and all *bedding plants*, are best put out about the latter end of May; all danger of frosts is then over, and vegetation proceeds rapidly and safely. We do quite as well with dahlias put out in June; they come into bloom at a favorable time, when the hottest weather is over. We intend to give a few hints on their management next month.

Annual Flower Seeds, where to be sown in the open border, should not be done until the weather is steadily fine, and the ground dry and warm. The soil should be made as fine as possible, as the seeds are generally small and the plants delicate. The covering is an important point; it should be very light and even. A very thin coat of fine moss aids in preserving a uniform degree of heat and moisture. Transplanting annuals, either from hot beds or from the open border, should if possible be done on a moist or cloudy day; and if the sun comes out strong immediately, a slight shade should be given. In cases of drouth, watering should be well attended to. Where seed beds are watered, a finely pierced rose should be put on the spout of the watering pot, that the water may fall like a gentle rain, and not disturb the earth or seeds.

Lawns, *Edgings*, *Walks*, *&c.*, will require a dressing. A little attention now to existing defects will give satisfaction during the whole season. Ornamental shrubs or trees requiring a slight pruning to put them in good shape, should receive it now; and all climbing roses, and other plants, be neatly adjusted on their supports.

The Kitchen Garden, if looked to for a constant and liberal supply of vegetables, must receive due attention. It happens frequently with the farmer, that his kitchen garden is neglected until the press of farm work is over, and then it can only yield a few of the common vegetables about mid-summer. How cheap the Farmer can have *radishes*, *lettuce*, *green peas*, *beans*, *asparagus*, *cabbages*, *cauliflower*, and the other luxuries that people in the city get so poor and pay so dearly for. Begin now; take the warmest and dryest border facing south for your early crops. Lettuce, peas, beans, potatoes, &c., can be planted any moment, and may have been long ago. Plant few at a time, and keep up the succession. Such articles as radishes, lettuce, and green peas, may be on the table all summer, if desired. It would certainly pay every farmer who has a large family, to keep one man most of the time in the garden; unless during haying and harvesting, when he might turn out. There is economy, to say nothing of the comfort, in keeping the table well supplied from the garden. Buist's book on the "Kitchen Garden" will be a great aid to those who do not keep a gardener.

Before closing our brief chapter of hints, intended merely to refresh the memory, we must say a word about *liquid manure.* This should be considered as an indispensable article in every garden. The drainage of the stables may be saved, or the liquid may be made in a barrel or tank with rain water and manure. All growing crops in the kitchen garden should be freely supplied two or three times a week; it forces their growth, and makes them tender and succulent. Strawberries, just after the fruit is set and until it begins to ripen, will be greatly benefitted by an application two or three times a week. The great advantage of liquid manure, and what makes it act upon plants like a "charm," is that it is in a fit state to be immediately appropriated by them. Solid manures have to remain in the ground long enough to be dissolved.

Insects require constant watching. *Caterpillars* on the apple trees; the *curculio* on the plums, apricots, and nectarines; the *aphis* on the foliage of various kinds of trees; the *peach worm*, or *borer*, and the various other insects that prey upon trees and plants; come forth at their appointed time: and to repel them promptly must be as much the business of the cultivator now, as to sow his seeds or plant his trees.

THE CANDYTUFT.

The *Purple Candytuft*, an engraving of which we give, is an annual plant, growing to the height of about a foot, with spreading branches and large heads of purple flowers. The species is a native of Candia, and seeds were taken to England about the year 1590. From that time it has been a general favorite in British gardens, and should be grown by all lovers of flowers, for its beauty and easy culture. It grows well on almost any rich soil, if not too moist; and as it will not bear transplanting well, it should be sown where it is to remain. Sow from the 1st to the 15th of May. Superior flowers will be obtained by soaking the ground occasionally with liquid manure, readily obtained by placing the cleanings of the fowl-house in a barrel with water, and keeping on hand a constant supply. When the plants are going into flower the heads should be examined; and if too numerous, they should be removed. By this treatment, and occasionally loosening the ground around the plants, and keeping it free from weeds, flowers have been grown three inches across, most beautifully colored, being of a very dark purple on the outside, and softening to nearly white in the center. The great points are thinning the flowers gradually as they increase in size, and supplying their roots with abundance of rich food when they are going into flower. By this mode of treatment much finer flowers may be grown than those usually seen in our gardens.

PURPLE CANDYTUFT.

The *Rocket Candytuft* is a splendid variety, growing two feet high, branching widely, each plant producing three to five racemes of flowers from six to ten inches long, and the center one even longer than this, if properly cultivated. Cultivation the same as the *Purple.*

Editor's Table.

FLOWER SEEDS.—Our applications for flower seeds now count up more than four thousand, and every one will be sent previous to the 5th of April. Some apply for double dahlias, verbenas, and other plants that are not propagated from seed, but from bulbs and cuttings, which it will be impossible for us to send. The following persons have made application for packages of seeds, without giving in their Post office address: Mrs. A. S. Manly, Mary Coon, Clarinda R. Sanders, Mrs. D. L. Ackerman, J. L. Anderson, A. M. Mc Fatridge, C. Wire, Mary C. Saunders, Louisa Luce, Mrs. D. Bouck. These will have to send again, giving us the name of Post office and State.

IF any of our brethren of the Agricultural Press wish to engage the services of an editor who is a good practical farmer, and thorough chemist, well acquainted with the best systems of agriculture in this country and in Europe, and who for several years assisted Messrs. LAWES and GILBERT in their invaluable experiments, they will please write us on the subject.

CLOTH FOR HOT-BEDS.—I see in your March number of the *Farmer*, that you say you can not speak favorably of cloth as a substitute for glass in hot-beds. You don't say why it is not successful. I used both the cloth and glass last season, and found in many respects the cloth was far superior to glass; so much so, that I shall this season wholly discard glass, and use the cloth instead. SYLVESTER LORD.—*Medusa, N. Y.*

Necessary absence about the time our hot-beds should have been in perfection, prevented our testing the matter personally as we intended to do, and consequently we had to rely on the statement of those to whose care they were committed. We are gratified at the statement of Mr. L.

Inquiries and Answers.

(John B. Jones, Patterson.) CARROTS.—We know of no better manure for carrots than well rotted barnyard manure. 300 lbs. per acre of superphosphate of lime may be added with profit. Four pounds of seed per acre is sufficient. It should be sown in rows about one foot apart, as it is then much easier to keep the land clean. The superphosphate of lime should be placed as near the seed as possible.

(W. V. Morse, Hayfield, Craw. Co., Pa.) We believe there is no cure for horses that have the heaves badly; but much may be done to relieve them by judicious management and feeding. The horse affected should never be worked hard on a full stomach, nor allowed to drink large quantities of water at once. Dusty clover or hay is very injurious. Good clean timothy, cut fine and moistened with water, and if convenient, mixed with shorts or bran, is the best food. Equal parts by weight, of sulphur, saltpetre, antimony, and liquorice powder, mixed together, is a good cordial medicine for such horses in the spring. A table spoonful should be given in moistened shorts twice a week.

AMMONIA.—Can you inform me how to manufacture ammonia? I have read in some book, that large quantities have been manufactured in England by the use of common salt; but that the duty on this article is so high there, that the manufacture has been abandoned. T. H.—*L. Island.*

We believe there is now no duty on salt in England, and *muriate of ammonia* is extensively made; but the impure article used for agricultural purposes sells for $100 per ton, and though it greatly increases the produce of wheat, yet at the present price of wheat it does not pay to apply it. The cheapest method of obtaining ammonia, is by growing green crops extensively and consuming them with cattle or sheep, giving them oil-cake or other rich nitrogenous food.

COAL TAR.—Will coal tar at $2.50 per barrel preserve shingles enough to pay the cost of painting them with it? Will the building be more likely to take fire with it on the roof? How would you apply it? I am altogether unacquainted with it, but have heard it would be beneficial if applied. A. KENT.

We know of no substance so cheap and so beneficial to preserve wood of all kinds, as coal tar. Have never seen shingles painted with it, but think it would render them more durable. They are themselves highly inflammable, and a coat of coal tar would rather diminish than increase their liability to take fire. It could be applied with a common white-wash brush. Gates and board fences, barns, out-houses, &c., would be greatly benefitted by an application.

ONIONS.—We have received many valuable communications in answer to the inquiry of S. A. D. T. K. in the February number, from which we give extracts that will be found interesting.

"The ground best adapted for the growth of onions is what is generally termed a good wheat soil. The year previous to sowing onions, I plow the land deep; manure well with horse dung, and plant to potatoes or corn. After the crop is off in the fall, yard sheep on the land, removing them before feeding hay in the spring. I stir the surface of the ground only with a cultivator, and sow the seed as early as the soil will admit. In

raising the black seed or common onion, I sow in drills 13 or 14 inches apart, sowing four times as much seed as I intend to have remain should it all grow. When of sufficient size to weed, I use the hoe, and the drills being straight allow me to cut close, leaving but little to weed by hand. Where I find them too thick I cut them out with a sharp hoe, about five inches apart, leaving five plants in a hill. Where there are any missing, I transplant. In this way I usually obtain good crops. Last year I had 281¼ bu. from 45 rods of ground treated in this way. G. N. Hathawley.—*West Potsdam, N. Y.*"

"Top Onions.—I always place my top onions in the ground as soon in the spring as I can get them in—sometimes in March, but always as early as April. Those intended for raising seed should be set deeper in the ground than those for bottoms. The largest seedlings will raise seed. I cultivate for seed, therefore break no tops. I save my old onions, which are sound, to re-plant in the spring. I have had good success in keeping, as follows:—The seed will do to cut from the stalk when the stalk begins to dry up, which will be generally the last of July or first of August. The seeds are laid in a dry, airy place. The bottoms are left—those I use for seed—till the last of August or first of September. They are then taken up and dried in the sun a day or two, and are then removed to a dry place. When winter is about to set in, I put them all in old sacks or bags, from a bushel to a bushel and a half in a bag, after looking them over carefully and putting up none but sound. I then place these bags in my chamber, over my kitchen, and hang them up. I sometimes keep the bottoms in my cellar, but it requires more care. There is no fire in the chamber, but the heat from below. It will not spoil them to freeze, although I prefer not to have them, but keep them dry and cool. A. S. Moss.—*Fredonia, N. Y.*"

"I shall not undertake to answer strictly the inquiries contained in your February number, but will give some of the experience of twenty-five years practice in raising from 1000 to 2000 bushels of onions each year, without ever failing for the last twenty years. There are three important considerations to ensure a large crop of onions:

1st. Rich land, well prepared with fine manure.

2d. Sow the seed early, if possible the first time the land is dry enough after the snow is off in the spring, in rows 14 or 16 inches apart.

3d. Thin out to 1½ inches in the rows, and to be kept free from weeds.

The general cause of failure is late sowing; onions will not bottom unless sowed early; those sown early will never fail to be proper onions, but the size will depend on the quality of the land and the manner of tilling. Some are yet of the opinion that the only certain way to ensure a crop of onions, is to raise from sets; this is a mistake. The experience of the last ten years has shown that the quantity of onion seed used, in proportion to other seed, has five times doubled in sections (particularly at the south) where the idea has been prevalent that onions could not be raised from the seed the first year, which is altogether erroneous. Wm. Risley.—*Fredonia, N. Y.*"

To Kill White Birches.—As there has been inquiry made as to the best mode of killing White Birch, I would say in reply, cut them in the spring before the leaves start; cut the stumps two or three feet from the ground and it will be sure death. Some may object to cutting them so high up, but if cut close to the ground, there will start fifty from one. The stumps will rot in one year. E. P.—*Rose, N. Y.*

Ice Houses.—I want to erect myself an Ice House during the ensuing summer, so it may be ready to fill next winter. I would be pleased to be informed by some of your numerous correspondents the best mode to erect one, as a building of this kind with us is quite a novelty. Cannot it be filled in cold freezing weather by letting a small stream of water run in at the top of the building from my water-fountain, which is high enough to let it in at the top. S. John.—*Mount Comfort, Pa.*

Dairy House.—I design building a Milk or Dairy house—should I put it two, three, four, or five feet below the surface of the earth? Should I have a flag-stone floor? Can I have *too much* ventilation on the north side? Should I have more than half as much on the south side as on the north, and should those windows be near the top of the room for the warmed air to pass off? Should the sides, or the south side, be filled in between the siding and inside plastering with tan bark, or not? Should the space between the roof and inside of the rafters be filled with tan bark? In fine, do give us a good plan for a Dairy House—practical, plain, and not too costly. I have never seen a very large number, but I have never seen a good one. E. H.—*Manorkill, N. Y.*

HORTICULTURAL.

(J. D. V., Benton, N. Y.) Apples.—Your specimens came to hand somewhat damaged, but it is a tender, juicy, sweet fruit—as good as any of its season—and if a good grower and bearer, worthy of cultivation. Send us a couple of grafts in a letter.

(W. J. B., Grand Rapids, Mich.) You can procure Horse Chestnuts of the seedsmen, in the Autumn, at about $5 per barrel, perhaps less. Sow in drills four inches apart, cover three inches deep, and when they have grown one or two years, transplant into nursery rows.

(W. S. H., Ballston Spa.) We are not aware of the Sarracenia being cultivated in gardens successfully. It would require low, marshy ground. It is, as you remark, "a curious and elegant plant," better appreciated abroad than at home. Thousands are annually sent to Europe.

The best book on general floriculture is Breck's; the best special, rose treatise, is Parsons'. We cannot answer as to "what rose bears the highest reputation." It depends upon the character desired. *La Reine*, Hybrid Perpetual; *Souvenir de la Malmaison*, Bourbon; *Cloth of Gold*, Noisette; *Devoniensis*, Tea; are all celebrated and fine roses of their respective classes.

(J. M., Albion, Iowa.) We fear you will never succeed in growing peaches on your rich, deep, black loamy soil—"two to three feet deep in a

clay subsoil." As you remark, the trees grow too rank, and too late in the fall. You must have dry, gravelly, or sandy upland. It might be well to put a bed of stones and gravel under each tree, and mix sand and gravel with the soil about the roots; work them also on plum stocks.

(A Subscriber.) In grafting the limbs of large trees, it is neither necessary nor proper to cut them back to the trunk, but merely so far as will bring the new shoots at a proper distance from one another to make a good shaped head.

(M. H. H., Perry, Wyoming Co., N. Y.) Neither the *Chromatella* Rose, nor *Double White Althea*, are hardy enough to bear our winters unprotected. A slight covering of straw protects them. All the other Altheas are hardy enough.

(T. K., Cavan, C. W.) Pears on quince stocks succeed well on all good soils. A deep, dry loam is best; gravelly soil should be avoided. The quince itself succeeds as well, and better, on a dry soil than a moist one, provided it be deep and good. The cold vinery will be forthcoming soon.

(J. H., Newstead, Erie Co., N. Y.) Subsoil Plows.—We use the No. 1 Subsoil Plow made by Ruggles, Nourse & Mason. In clear land without stones, two horses, following the common plow, will pulverize the bottom eight or ten inches deep; if stony or gravelly, four horses will be required. For very heavy work, we would recommend No. 2 of the same make.

Planting Trees in a Wheat Field.—If you do this, you must keep a clear space of at least six or eight feet all around the trees, or they will be ruined.

(Mrs. J. H. W., Whitesboro.) The green insects on your roses are *aphides*, easily killed on your house plants with tobacco smoke, and on the garden plants with a mixture of soap suds and tobacco juice thrown freely over them with a syringe, or by dipping in the branches.

(J. W. C., Bull's Pond.) The *Northern Spy* fully sustains its high character here. We do not hesitate to call it the *best* of all long keepers.

(H. K. E., Rockford, Ills.) We refer you to the Nurserymen's advertisements; any of them will send you a catalogue.

The Osage Orange is easily grown. You can get seed of any seedsman at 75 cts. to $1 per quart, and young plants from the nurserymen at $10 per 1000. Sow the seed as you would peas. The plants are set in a row, for a hedge, six inches apart, in good, clean, well prepared soil. We will be thankful for any information in regard to your section.

(H. C., Huron, N. Y.) You can use either the English or American Thorn for stocks for the pear. Paradise stocks, and dwarf Apple trees, may be had at any of the nurseries. See advertisements.

(A. V. B., New Paris, Ky.) The seeds will be sent. Enclose us a few melon seeds in a letter, by mail.

(P. F. E., Cross Keys, Va.) We cannot recommend you a cure for "bitter rot." It prevails in certain localities, and in some varieties more than others. Renew your stock from the north, and plant on *dry* soils.

(D. S., McGillirsay.) You will find a recipe for grafting composition in back numbers of the Farmer. Rosin, beeswax, and tallow, in equal parts, melted together and well worked, answers very well. See Hints for this month.

(M. C. W., Chagrin Falls, O.) Follow up the tobacco solution and it will destroy the insects you allude to effectually. White-washing is of no use, as it is the leaves they feed on.

(J. L. E., Mexico.) It is not good to plant trees on green sward; but if you must do it, dig and pulverize well a space four or five feet in diameter around each tree. Plowing ridges six feet wide, for each row, would answer. Keep the ground clean about the trees all summer.

(A. T., Amboy, Ohio.) *Hovey's Seedling* strawberry can be procured of any nurseryman, at about $2 per 100.

(Subscriber, Rushville, N. Y.) The ground, for hedge plants, should be well plowed or trenched, in as good order as for corn. You can set the row a foot from the stone wall. We would recommend you Buckthorn, as we are not sure that the Osage Orange will be perfectly hardy. We think it will, as our hedge now looks well after the hard winter.

J. H. L., East Charlemont, Mass., inquires if any of our correspondents know of any method of preserving trees that have been girdled. We know of none.

(T. N. M., Canandaigua.) Some of your seeds may come up this season, but it is doubtful. They were either too old, or some way mismanaged.

(S. E. P., Potter's Hollow.) Use lime water. If badly infested, re-pot with fresh earth.

(J. H. C., Springport.) You can graft the Grape Vine before it begins to grow. Cut off the stock level with the ground, and cleft-graft as you would an apple tree; when the scion is secured, draw up the earth around it, leaving out one bud. The best way to protect tender sorts is to lay down the vine in the beginning of winter and cover with a few inches of earth.

(B. P. C., Pleasant Mount, Pa.) You can graft your *Mazzard* stocks, but it is now too late, so you had better bud them in August. If small, say not over half an inch in diameter, put in one bud within three or four inches of the ground; if large, bud the branches.

(S. G. M.) PRAIRIE RAIL TIMBER.—We recommend you the yellow locust. Raise the plants from seed; transplant at one year old, and in five or six years you will have rail timber. You can get seed at the seed stores generally. The European Larch is a rapid growing tree, worthy your attention. You can get seeds or plants, through the nurserymen.

(R. W., Macedon.) The best work on the indigenous Flora, is Gray's Genera of the Plants of the United States, 2 vols., beautifully illustrated.—Gray's Botanical Text Book is a smaller and cheaper work, and affords considerable information.

(H. L., Pleasantville, N. Y.) The Azalea is propagated by cuttings of young wood put in a mixture of sand and peat, and covered with a bell glass until rooted. It is also propagated by layers, and this is the easier way for you; put out the plants in a peaty border, and layer in the usual way, in July.

All communications, inquiries, &c., should be sent in not later than the 10th of the month, in order to receive attention in the following month's paper.

WILLOWS.—Permit me, as a subscriber to the Farmer, to make a few inquiries relative to the Willow. In a number of the State Register, under date of March 8th, is quite a lengthy article from the Philadelphia North American, describing three varieties—*Salix Viminalis*, *Salix Capua*, and *Salix Alba*.

Where can the two first named varieties be found? What is the best manner of cultivating? What kind of soil is best adapted? and will it grow upon any soil? What is the usual and best way of cleaning the bark off the wood, and preparing for market?

A gentleman by the name of W. G. Haynes, a resident of this State, has grown some, but I do not know his residence. Please inform me if you can.

The above, and any other matter of interest, touching growth, &c., of the Willow, you will, if possible, answer through your columns or by letter. DANIEL MORSE.—*Lockport.*

The *Viminalis*, which is the common English osier, is the best for basket work, though several others are used for that purpose. The above sort can be had in small quantities at least, in many of the nurseries.

The best soil for the willow is a deep, moist, loamy soil near water, along streams, margins of lakes, &c., &c. Gen. HARMON, of Wheatland, has given some attention to this subject, and will probably be kind enough to furnish some of the desired information from his experience.

To Farmers.

CANVASS and Oiled Cloth Stack covers on hand, or made to order. E. C. WILLIAMS, AGENT,
Sail and Tent Maker, No. 12 Buffalo St., Rochester, N. Y.
April, 1852.

Peruvian Guano.

AND other Fertilizers. Several hundred tons of first quality of Peruvian Guano, constantly on hand for sale.
Also, Bone Dust, Plaster of Paris, and Poudrette.
A. B. ALLEN & CO.,
April, 1852—tf. 189 and 191 Water st., New York.

Manures.

PERUVIAN GUANO, Bone Dust, Pulverized Charcoal, Poudrette, Plaster, Wood's Renovating Salts, Potash, Sulphuric Acid, Sugar-house Scum, for sale in lots to suit purchasers. LONGETT & GRIFFING,
[4-2t] 25 Cliff Street, New York.

To Nurserymen.

A FEW Quarts of European Mountain Ash Seed, clean from pulp, and will be ready to sow from 1st April to 1st May. For sale by the subscribers, at the Geneva Nursery, at $5 per quart. W. T. & E. SMITH,
[4-1t*] Geneva, N. Y.

Union Agricultural Warehouse and Seed Store.

RALPH & CO., No. 23 Fulton Street, New York, near Fulton Market, Dealers in all the most approved Agricultural and Horticultural Implements; Imported and American Field and Garden Seeds; Ornamental Shade and Fruit Trees; Guano; Bone Dust; Poudrette, &c. Wrought Iron Plows, Trucks, Barrows, &c., &c, always on hand. Also, the Excelsior, or California Plow. [3-3t]

Tents! Tents!!

FOR SALE, to rent, or made to order, of any required dimensions. Agricultural Societies wishing to hire Tents the coming season, will please make early application, as by knowing early how many, and at what time they will be needed, I can make arrangements to supply all.
E. C. WILLIAMS, AGENT,
Sail and Tent Maker, No. 12 Buffalo St., Rochester, N. Y.
N. B.—Flags, National and Agricultural, with devices, or any other kind, made to order at short notice.
April, 1852.

Spring Wheat.

WE have just received by the first Boat from Canada—
100 bu. of the celebrated Fife Wheat, which does not rust.
100 bu. Club Wheat.
100 " Black Sea do. grown in this State.
100 " Italian Wheat.
25 " Spring Rye.
Farmers who are in want of a good article, will please give us a call, and get some of the right kind of seed, at the Genesee Seed Store, 63 and 65 Buffalo st., Rochester, N. Y.
April, 1852. J. RAPALJE & CO.

Plows! Plows!!

WE are now getting in our spring supply of the celebrated Eagle Plows from Boston; also, the justly celebrated Curtis Plow, made by H. C. Curtis, Albion. These Plows stand unrivalled in this country, and are made expressly for use. They are made of superior timber, and the workmanship cannot be beat in this or any other country. All Plows sold by us are warranted to perform as recommended, or they may be returned and the money refunded.
J. RAPALJE & CO.,
Genesee Seed Store and Agricultural Warehouse, Rochester, N. Y.
March 1, 1852.

Cochin China and Shanghae Fowls for Sale.

THE subscriber has for sale a few pairs of his celebrated stock of *Cochin China* fowls, of his own importation, warranted true to their name and not excelled by any other stock in the country for good qualities. Also, a few pairs of the Marsh Stock of *Shanghaes* and *Sumatra Game Fowls*. Reference given in regard to them, if desired.

EGGS FOR SETTING.

Eggs furnished from the above stock carefully packed for transportation, and orders for the same addressed to the subscriber will be promptly attended to. Price of Eggs $2 per dozen. CHARLES SAMPSON,
[3-2t] West Roxbury, Mass.

WRIGHT'S PREMIUM HORSE-HOE,
OR
Improved Shovel, Plow, and Cultivator, Combined.

Application filed in the U. S. Patent Office.

TO the above was awarded the first premium at the New York State Fair held at Rochester in September, 1851. This Implement is so arranged that it can be used between rows of any width, from two to four feet apart, and can also be governed as to the depth, by raising or depressing the wings or hoes. The earth can be removed from the crop when small, or hilled up in its more forward state. In other words, the operator can perform all that is necessary to insure a good crop of corn, potatoes, &c., without the aid of hand hoeing, provided the directions which will accompany each Machine, are followed.

The main difficulty with all Corn Cultivators heretofore in use, is this: they do not perform enough to obviate the necessity of using the hand hoe two or three times during the season, which, to the farmer, is a very heavy expense, at a season of the year when labor is scarce and high. It is believed by the Inventor that this Implement will save the cost in hand hoeing on every 15 acres of corn or other hoed crops, and that the work can be done equal or better than twice hoeing by hand. Price $10.

This Implement can be returned after one week's trial and money *refunded, if not satisfactory.*

Orders addressed to CASH & WRIGHT, Batavia, Genesee County, N. Y.

AGENTS.—E. Cash, South Byron, Gen. Co., N. Y.; Briggs & Brother, Rochester, N. Y.; G. Dodge & Co., Batavia, N. Y.; March & Brewster, Stafford; Bixby & Carpenter, Leroy; G. F. Barnet & Co., Brockport; T. C. Curtis, Albion; W. K. Marvin, Lockport; John S. Wright, Emerald Grove, Wisconsin.

And will also be for sale in most of the principal cities and villages in Western New York.

April, 1852. CASH & WRIGHT.

Wood's Renovating Salts.

THE subscribers are now receiving large quantities of this valuable manure put up in barrels, which we will sell at one cent per lb.—no charge for barrels.

This article is made from the following ingredients, viz.: Potash, Bone Dust, Bone Coal, Plaster, Glauber Salts, Saltpetre, Oil of Vitriol, Salts of Ammonia, Gas, Liquor, and Bullocks' Blood. For sale at the State Agricultural Warehouse, No. 25 Cliff street, New York.

LONGETT & GRIFFING.

We hereby certify, that our Renovating Salts are composed of the ingredients represented, and pledge ourselves to refund the money in all cases, to purchasers who can produce satisfactory proof to the contrary. WOOD & CO.

New York, March, 1, 1852. [4-2t]

Stock Horses for Sale.

THE subscriber offers for sale his Stock Horses, "Hercules" and "Royal Britain." Hercules was sired by imported Alfred, dam by imported Sampson, g. dam by Blucher, g. g. dam by Whalebone. Hercules is four years past, color dark bay, heavy built, and weighed, in September last, 1550 lbs. He was awarded, at the State Fair held at Rochester, by the Committee on Draft Horses, the *Second Prize.*

Royal Britain was sired by Mr. Dickey's Sampson; he by Mr. Robinson's imported Sampson; Mr. Dickey's Sampson's dam, by imported Emigrant; Britain's dam, by imported Performer, color dark bay, with a small white star; weighed, in September last, 1310 lbs.

HIRAM HOSMER.

Bennington, Wyoming Co., N. Y. [4-1t*]

Bone Dust.

BONE DUST, Coarse Turnings and Sawings, when taken in equal parts, price $2,25 per bbl., including package.—This article is fresh, and warranted pure, from the Empire Mills. LONGETT & GRIFFING,

[4-2t] 25 Cliff Street, New York.

Field and Garden Seeds.

CLOVER, Large Clover, Timothy Seed, Blue Grass, Red Top, Ray Grass, White Clover, and Lucerne.

Garden Seeds—Ruta Baga, Turnep, Cabbage, Beet, Carrot, Parsnep, Peas and Beans of every variety.

Fruit and Ornamental Trees—Having been appointed agent for one of the best nurseries in the country, we are prepared to execute orders at short notice.

LONGETT & GRIFFING,

[4-2t] 25 Cliff Street, New York.

A. FROST & CO.,
GENESEE VALLEY NURSERIES.
ROCHESTER, N. Y.

THE proprietors of these Nurseries solicit the attention of Nurserymen, Orchardists, Amateurs, and others intending to plant, to their large stock of Fruit and Ornamental Trees and Shrubs, which consists of a very extensive assortment and also being much superior in quality to any that they have before offered to the public, owing to their large importations from Europe and extensive home culture. Therefore, they can with confidence assert that whatever articles may be sent from their Nurseries will give universal satisfaction, and their prices having been much reduced they desire particular notice to them.

Articles furnished from their grounds will be ascertained to cost less received in much better condition, and consequently to give better satisfaction to the purchaser, than to obtain them of travelling agents.

All communications promptly noticed.

For further description of their Fruits, Ornamental Trees and Shrubs, they refer to their *priced* descriptive catalogue, which may be obtained gratis, upon application.

Apple Trees—Strong and thrifty, 6 to 7 feet, comprising all the best varieties.

Pears—Standards of all the best sorts. Dwarf, trained as pyramids of one, two, and three, embracing over 75 of the most desirable kinds.

Cherries—5 to 7 feet, with fine heads, of 30 sorts most approved for cultivation. A quantity of an extra size can be furnished.

Peaches—of all the best sorts. Some extra size trees on hand.

Plums, Apricots, Nectarines, &c.—A fine collection.

Gooseberries—A large stock of superior plants, embracing 30 sorts of the best Lancashire varieties, best adapted for our climate.

Currants—Their collection of fine plants, and choice sorts of this valuable garden fruit, cannot be excelled—as follows: Cherry, May's Victoria, Red Grape, White Grape, Black Naples, Black English, White and Red Dutch.

Raspberries—Fastolff, Red and White Antwerp, Large Fruited, Monthly, and others.

Strawberries—of 15 best sorts.

Grapes—the native sorts—Isabella, Catawba, and Clinton.

Ornamental Trees—European Horse Chestnuts, Mountain Ash, Weeping Willow, and an assortment of our native trees. American Weeping Willow, a new variety, very beautiful and distinct; English Weeping Ash; Golden twigged do.; Weeping Limes; European Larch; and others.

Ornamental Flowering Shrubs, &c.—Crataegus and Hibiscus in variety, Cydonia Japonica, Spireas Douglassii and Prunifolia, Daphne Mezereum, Crataegus Pyracantha, Euonymus Americana, Wegelia Rosea, Tree Paeonies 18 in. to 2 ft., and Purple Magnolias 4 ft.

Evergreen Trees, Shrubs, &c.—Norway Spruce, Balsam Fir, Pinus Sylvestris and Austriaca, English and Irish Yews, Tree Box, and the Dwarf, for edging, Deodar Cedars 2 ft., Lebanon Cedars 2 ft., Cryptomeria Japonica 2 ft., Araucaria Imbricata 15 in., Forsythia Viridissima, Mahonia Aquifolia, and Magnolias which are very fine.

Standard Roses, 5 feet, and *Dwarf Roses* of the newest and best sorts, comprising Hybrid Perpetuals, Mosses, Bourbons, Teas, and Noisettes.

They will issue soon a catalogue of bedding plants, embracing a collection of new Dahlias, Verbenas, Petunias, Heliotropes, Fuchsias, Cinerarias, Antirrhinums, named sorts of Pansies, Salvias, Shrubby Calceolarias, Penstemons, and other valuable bedding plants that have just been imported.

The Dahlias embrace all the sorts of merit that appeared at the great Dahlia Show in England last season, which they have procured at a great expense.

April, 1852.

Peas! Peas!!

WE are now receiving by the first boat from Canada—

1,000 bushels pure White Field Peas, such as Golden Vine, Creeper, White Canada, etc.
500 bushels White Marrowfat.
100 " Black Eyed do.
100 " Blue Prussian.
200 " Early Washington.
100 " Early Frame.
100 " Early Warwick.

Farmers who want good Peas at low prices, will please call at the Genesee Seed Store and Agricultural Warehouse, 63 and 65 Buffalo st. J. RAPALJE & CO.

April, 1852.

NEW AND FINE SHRUBS AND PLANTS.

ELLWANGER & BARRY, Proprietors of the Mount Hope Nurseries, Rochester, N. Y., solicit the attention of those interested in Ornamental Plants to their large stock of rare and beautiful Shrubs and Plants, among which are the following:

HARDY SHRUBS.

Deutzia Scabra, or Garland Deutzia, a fine white flowering shrub.

Forsythia Viridissima.

Ribes Gordoni—Gordon's Currant—yellow and crimson, very fine.

Spiræa Prunifolia flore plena—small, double, white flowers in great profusion; fine dense habit.

Spiræa Lanceolata, or Reevesi, one of the finest of the genus.

Spiræa Chamædrifolia, Nicoderti, Lindleyana, Japonica, and twenty others.

Syringa (Philadelphus) *Pubescens, Zepherii, Cordata, Double, Columbiana*, and others, all fine.

Lonicera Ledibouri—a fine Californian shrub.

Tamarix, Africana, Germanica, Gallica, and *Lebanotica.*

Viburnum Lantanoides, a beautiful shrub.

Wiegela Rosea—the finest hardy shrub, lately introduced from China.

The above excellent things can be furnished in quantities, at low prices.

SELECT GREEN-HOUSE AND BEDDING PLANTS.

FUCHSIAS.—Our collection is one of the best in America. The most distinct and best varieties yet introduced and quite rare, such as *Pearl of England, Fair Rosamond, Serratifolia, Serratifolia multiflora, Fulgens Corymbiflora, Corymbiflora Alba, Magnificent, President, President Porcher, Spectabilis*, &c., are propagated largely.

VERBENAS.—A collection of fifty varieties, comprising everything fine introduced to this time.

HELIOTROPES.—*Souvenir de Liege, Corymbosum*, and some new varieties just received and to be announced hereafter.

PLUMBAGO LARPENTÆ.

CUPHEAS.—*Platycentra, Stringulosa*, and others. The first is one of the finest bedding plants.

LANTANAS.—*Eringi*, the fine new Cincinnati variety, rose and straw color; *Mutabilis Major*, and several others.

BOUVARDIAS.—*Triphylla*, and others.

ABUTILONS.

SALVIAS.—*Splendens Major, Oppositifolia, Azurea*, and others—superb plants for masses.

FABIANA IMBRICATA.

HYDRANGEAS.—*Hortensis, Japonica, Cordata*, &c.

BUDDLEA LINDLEYANA—a fine shrubby plant with large clusters of purplish lilac flowers; blooms in the autumn.

HABROTHAMNUS ELEGANS—a superb plant, half shrubby, with large clusters of showy crimson flowers; blooms equally well in the open ground in autumn, and in the house in winter.

PETUNIAS.—A large collection, embracing all distinct and good sorts.

LOBELIA FULGENS INSIGNIS, LOBELIA FULGENS ALBA—flowers of dazzling beauty—both new.

VERONICA LINDLEYANA—a charming autumn flowering plant; long elegant spikes of pale (nearly white) blossoms. *Veronica Andersoni*—finest of all—*new.*

TREE VIOLETS—white and purple.

CHRYSANTHEMUMS.—A fine collection of the novel and beautiful pompone or dwarf varieties.

DAHLIAS.—A superb collection, including the English and French prize sorts of 1851—all at very low rates.

CINERARIAS.—A fine collection of new and beautiful sorts, including *Magnificent, Attilla, David Copperfield, Wellington, Beauty of Newington*, &c. &c.

All the above articles furnished in large or small quantities, at low rates, and packed so as to go any distance with safety.

Priced Catalogues of Dahlias, &c. &c., ready 1st of March.

March 1, 1852.

York County Farm for Sale.

ANY gentleman wishing to remove South, can be accommodated with a good Farm of 250 acres, about 70 acres open, level, abundance of marl, orchard and small dwelling, very healthy, and good water. The residue is well set in Pine, Oak, and Chestnut, and one mile from a bold creek. Any gentleman wishing to purchase, will communicate with the subscriber. EDWARD R. COKE,

Feb. 1852.—2-2t* Burnt Ordinary, James City Co., Va.

HIGHLAND NURSERIES, NEWBURGH, N.Y.

A. SAUL & CO. have the pleasure to announce to their patrons, and the public in general, that their stock of Fruit and Ornamental Trees, which they offer for sale the coming spring, is of the very best quality, and embraces everything in their line that can be procured in the trade.

Dealers and planters of trees on a large scale, will be treated with on as liberal terms as can be done by any establishment of *reputation* in the country. They flatter themselves that for correctness of nomenclature of fruits, (which is a serious consideration to planters) that their stock is as nearly perfect as it possibly can be, having been all propagated on their own grounds, from undoubted sources, under the personal supervision of Mr. Saul. They have propagated in large quantities all the leading standard varieties, which are proved to be best adapted for general cultivation, especially those recommended by the American Pomological Congress at its several sessions, as well as all novelties of recent introduction, and kinds particularly suited to certain localities, and sections of the Union and Canadas.

Their stock of Pear Trees is the largest they have ever had to offer for sale, and among the largest in the country, and consists of over 50,000 saleable trees.

The stock of Apple Trees is also very large, as well as Plums, Cherries, Apricots, Peaches, Quinces and Nectarines. Also, Grape Vines, Gooseberries, Currants, Raspberries, Strawberries, &c., &c.

Pears on Quince, Cherry on Mahaleb, and Apple on Paradise stocks, for pyramids and dwarfs for garden culture, and of which there is a choice assortment of the kinds which succeed best on those stocks.

DECIDUOUS AND EVERGREEN ORNAMENTAL TREES AND SHRUBS.

Embracing all the known kinds suitable for street planting, of *extra size;* also, the more rare and select, as well as all the well known kinds suitable for Arboretums, Lawn and Door-yard planting, &c., including Weeping Trees, Vines, Garden and Climbing Roses in great variety. Hybrid Perpetuals, Hybrid China, Hybrid Bourbons, Hybrid Damasks, Hybrid Provence, and Bourbon, Tea, China and Noisette, and Prairie, and other Climbing Roses.

A large quantity of Arbor Vitæ for Screens, Buckthorn, Osage Orange, and other hedge plants.

The above will be sold on as liberal terms as similar stock can be purchased elsewhere. For further particulars see catalogues, a new edition of which is just issued, and will be forwarded to all post-paid applicants by mail. A liberal discount will be made to purchasers who buy to sell again, and extensive planters on their own account.

P. S.—Freight paid to New York.

Newburgh, March 1, 1852. [3-2t]

Fruit and Ornamental Trees.

ELLWANGER & BARRY beg to remind those who intend to plant next spring, that their stock of Standard Fruit Trees for orchards, Dwarf Fruit Trees for gardens, Ornamental Trees for streets, parks, gardens, and pleasure grounds, Shrubs, Roses, &c., is very large, and offers great inducements to those who desire first rate articles.

A complete Descriptive Catalogue is sent gratis to all who apply post-paid and send stamps for postage, which must now be pre-paid—5 cts. for 500 miles or under: 10 cts. over 500 miles and below 1000. A Wholesale Catalogue also furnished.

☞ See advertisement of Shrubs, &c., &c.

Mount Hope Nurseries, Rochester, N. Y., March 1, 1852.

Fruit Trees.

I AGAIN offer a large stock of Trees—about 100,000—of fine thrifty growth, composed in part of Apple, Pear, Peach, Cherry, &c.; together with an assortment of Green-House Plants suitable for bedding out—all of which are offered at extremely low prices.

Wholesale prices of Apple Trees will be from $9 to $10 per 100.

I would recommend to buyers, after examining other nurseries, to inspect mine before purchasing.

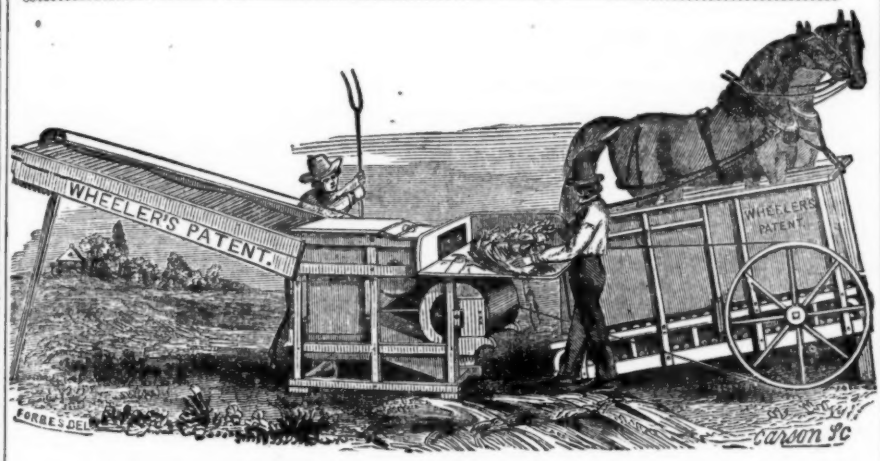
CHARLES POWIS.

Greece, Ridge Plank Road, N. Y., March 1, 1852.—3-3t.

Osage Orange for Hedges.

WE can furnish any number of fine yearling plants at $1.50 per 100, or $10 per 1000, or at $8 where 3000 or more are taken. Orders should be sent early. It takes about 32 plants to the rod, planted either in single rows at six inches apart, or in double rows a foot apart—either of which makes a good hedge. ELLWANGER & BARRY.

Rochester, N. Y., Jan., 1852.



New York State Agricultural Works,

ALBANY, N. Y.,

BY WHEELER, MELICK & CO.

THE subscribers are this season enabled to offer to Farmers, a new and most valuable and useful Machine. The successful combination of a WINNOWER with our Overshot Thresher proves another of its great advantages. The Winnower is attached with much less Geering than in the Undershot Machines, rendering it much more durable and compact, and more easily propelled. It has now been fairly tested, (a large number having been in constant use during the past Threshing season,) and has already in some instances superceded the most approved of the other kinds of Winnowers, the owners of which have thrown them aside after a thorough trial of ours. We have numerous commendatory letters from gentlemen who have purchased and used our Winnower, and we give extracts from a few of them.

Extract from a Letter of WM. OSBORN, Esq., *of Waterville, N. Y.*

Messrs. WHEELER, MELICK & Co.—*Gentlemen*:—My Uncle wishes me to say to you that his Winnower more than answered his expectations. My own opinion may be gathered from the fact that I want one as soon as you can forward it. It is unquestionably the most perfect thing ever got up for Threshing and Cleaning. I have considerable acquaintance with labor-saving Agricultural Machines, and I never yet saw anything which for its simplicity and perfect adaptation to the wants of Farmers, compared with your Machine.

From E. FRENCH, Esq., *Bridgeport, N. Y.*

Messrs. WHEELER, MELICK & Co.—*Gentlemen*:—If you could see the admiration your Winnower receives from all, you could not help feeling proud of it. You may expect several orders from here next season. My neighbors are scrambling for their turn to have me do their threshing, but will not employ other machines although they go about begging for work.

From J. GLENDENNING, Esq., *Newport, R. I.*

Messrs. WHEELER, MELICK & Co.—*Gentlemen*:—I am pleased to say that the Thresher and Winnower exceed my most sanguine expectations. I can get through 350 to 400 bushels of Oats per day.

From H. J. CREWELL, Esq., *Columbia, N. Y.*

Messrs. WHEELER, MELICK & Co.—*Gentlemen*:—The Thresher and Winnower you sent proves to be beyond my expectations. I have the pleasure of writing to you for one more, if you can furnish it within the next 3 or 4 weeks.

We might add many more equally flattering testimonials.

Price of Double Power with Thresher and Winnower, ... $225

The superiority of WHEELER'S PATENT RAILWAY CHAIN HORSE POWER, and OVERSHOT THRESHER and SEPARATOR is universally acknowledged wherever they have been tested. Thousands of them are in use, many of which have threshed from 50,000 to 100,000 bushels of grain, and are still in good condition. They are beyond doubt the most durable and economical machine in use.—Their capacity has been tested by repeated trials as well at the New York and Pennsylvania Fairs, as on several private occasions, in competition with another Machine made in this city which has been advertised to be far superior to ours, and in every instance the result has been about *one-third*, and in some instances more, in favor of our Machines. In every case except one where we have submitted our Machine to a *working* test at Fairs, it has taken the highest premiums, and in that excepted case the Committee decided that our machine performed its work in 8 minutes and its competitor in 11¾ minutes, being nearly one-third in favor of ours.

We have also exhibited ours in competition with the same machine at the State Fairs in Ohio, Michigan and Pennsylvania and also at the Provincial Fair of Upper Canada, at all of which we received the highest premiums, viz.: In Ohio, a Silver Medal and Diploma; in Michigan, $20; in Pennsylvania, $10; and in Canada, a Diploma.

We have numerous similar testimonials from County Societies, where we have always received the highest premiums awarded to Chain Powers.

Price of One Horse Power, Thresher, Separator and Belting, ... $120

Two Horse Do., ... 145

Besides the above, we manufacture and keep constantly on hand among other articles, Clover Hullers Straw and Stalk Cutters, Portable Saw Mills, (adapted to Horse Powers,) and Single Powers with Churn Geer attached. These last are extensively used in large Dairies, and are so arranged that the Power is used at pleasure for either threshing, churning, wood sawing, or other purposes.

☞ All machines made and sold by us are *warranted to give satisfaction* or they may be returned, after a reasonable time for trial.

Orders are solicited and will be promptly filled.

WHEELER, MELICK & CO.

Corners of Hamilton, Liberty and Pruyn Streets, (Near the Steamboat Landing,) Albany, N. Y.

April, 1852.

The Subscribers have obtained from Messrs. Wheeler, Melick & Co., of Albany, the exclusive sale and general agency in Rochester and Western New York, of their celebrated Agricultural Machines, which we will sell at their Albany prices, adding transportation.

J. RAPALJE & CO.

Albany Tile Works,

No. 60 Lancaster St., West of Medical College.

THE subscriber has now on hand, and is prepared to furnish to Agriculturists, Horse-Shoe and Sole Tile, for land drainage, of the most approved patterns. They are over 1 foot in length, 2¾ to 4½ inches calibre, from $12 to $18 per 1000 pieces—being the cheapest and most durable article used. Orders from a distance will receive prompt attention. [4-6t] JOHN GOTT, Jr.

EMERY & COMPANY,

Sole Manufacturers for the United States,

OF THE

New York State Agricultural Society's

FIRST PREMIUM

RAILROAD HORSE POWER,

Patented by H. L. EMERY, February 24, 1852.

Manufactory on Hamilton, Liberty and Union Streets; Warehouse and Sale Room, 369 and 371 Broadway,

ALBANY, N. Y.

THE above Horse Powers have been awarded the highest Premiums at the Fairs of the New York State Agricultural Society in 1850, and again in 1851; also, the highest Premium at the Michigan State Fair, at Detroit, in September, 1851, where a majority of the Committee owned and were using Wheeler's Powers on their farms, having purchased them previous to seeing our own; also a Gold Medal at the American Institute in 1851. It was also exhibited at the State Fairs of Ohio, Maryland, and Pennsylvania, and received the highest awards which could be given by the rules of their Societies. In every case, it has been in competition with all endless chain Powers of any note in this country.

Over SIX HUNDRED setts of the above Powers were sold and put in use from June to January last, not one being returned or failed.

To enable the public to distinguish the above Horse Power from all others, we here show its principle, and most important, parts, by diagrams and references—beside like diagrams and references of the Rack and Pinion Power, as made by ourselves, Wheeler's and others; and also the Rack and Pinion with epicycloydal teeth, which has long been successfully used in this vicinity, and which, with our recent improvements, in its adaptation and application to our Horse Power machinery places it the first on the list of Rack and Pinion Powers.

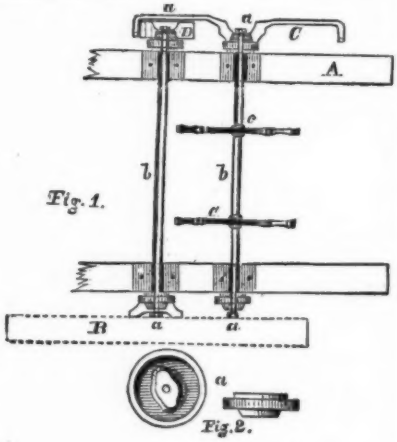


Fig. 1.

Fig. 2.

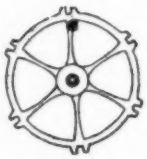


Fig. 4.

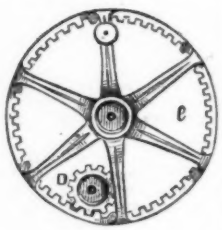


Fig. 3.

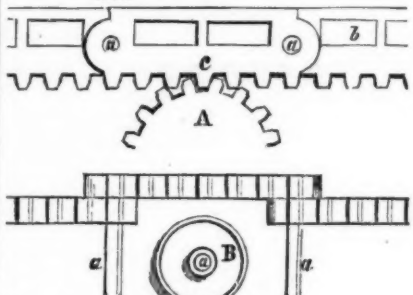
Top view of the Running Geer, and a portion of the frame work of H. L. EMERY'S Patent Changeable Railroad Horse Power.

Fig. 1. A A—Main sills or timbers of the Power supporting the shafts.
B—Band pulley upon one of the shafts.
D—Pinion, or small geer, upon the same shaft with pulley.
C—Converge or internal geer upon the main shaft, and working into and over the pinion.
b b—Main and counter shafts of power.
c c—Reels upon the main shaft, which support the endless flooring in its circuit, and carry the shaft.
a a a a—Couplings upon the ends of the shafts, fitting all the pullies and geers.

Fig. 2. Shows a side and edge view (enlarged) of the couplings.

Fig. 3. Side view of converge or internal geer and pinion.

Fig. 4. Side view of one of the two reels, c c, on the main shaft.

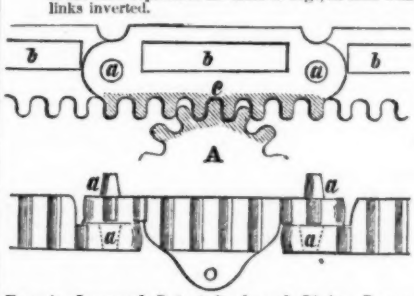


Common Rack and Pinion Power, as manufactured by ourselves, Wheelers and others.

B—Side view of one of the 72, (or 36 on each side,) small truck or friction wheels, which traverse with the endless flooring—being about 3¾ inches diameter.

C—Side view of one of the 72 (or 36 on each side,) links or segments of the chain, each of which are six inches long, as seen connected with others. a a a a—The eyes of the links and small rods crossing the power and extending through the links, and far enough outside to receive the small trucks.

A—Side view of a section of one of the pinions or small cog wheels, two of which are placed upon the main shaft, and receive the motion and force from the cogs on the links of the chain. This pinion is about 4½ inches in diameter, and the band pulley is used upon the same shaft, which for threshing, is four feet diameter. The lower view represents the teeth or cogs, as seen with links inverted.

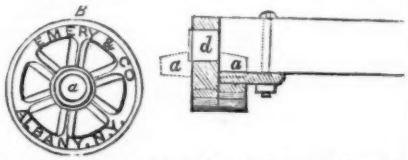


Emery's Improved Patent Rack and Pinion Power, with Epicycloydal teeth.

c—Shows a side view of one of the links or sections of the chain, of which there are but sixty, or thirty on a side, and are each seven inches long; every alternate link is cast with dowels, a a a a a, projecting each side; those on the inside connecting with other links, while those on the outside receive the truck wheels, thus avoiding the necessity of the small shafts, and expense of fitting up. The eyes of the links and truck wheels are cast upon steel chills—making a perfect, and hard smooth surface, which will not wear or break—while

the dowels are sufficiently large and strong to withstand more than the cogs themselves.

The lower edge of each link is widened equal to the face of the pinion, and the cogs made to extend the whole width of the pinion, as shown in the lower cut, representing the link inverted, presenting double the strength and driving surface, as shown in the last kind; every alternate link is confined to the plank flooring by a small screw bolt passing through a flange upon the inside of the link, and under the plank itself.



A—Shows a section of the pinion, which is a little larger in diameter than the last—the teeth of which are epicycloydal in form—as are those on the links working into them—which is acknowledged by all mechanics and engineers to be the strongest and most perfect form of teeth, and works with less friction and wear, as the driving surfaces present to each other a rolling, instead of sliding friction; this kind of teeth, on account of their rounded form, work much deeper into each other, and have little or no inclination to lift out of geer.

The last cut shows the construction of the truck wheels, which are 1¼ inches larger in diameter, and revolve on larger circles at the ends of the power—giving them an advantage over the smaller wheels. A section of a link is shown with the end of the flooring attached; these planks are all one inch wider, and consequently wear up by use much closer, before bending or breaking under the weight of the animals. As a Rack and Pinion Power, the latter has every advantage over the common kinds in use; is manufactured at a less cost; is equally strong and durable, and is more easily handled, as its weight is some two hundred pounds less.

Either of the above kinds of Powers are offered to the public, each upon its own merits, with a full warranty as to workmanship, materials and operation, (and with a guarantee of right of using in all parts of the United States,) subject to be returned within three months—and purchase money refunded. For prices, &c., see Illustrated Catalogue, furnished gratis on application, or by mail.

The first on the list is the highest in cost, and is found preferable in all cases, and under all circumstances. The power of the revolving platform being applied to the main shaft, by means of reels with larger diameters than the pinions used in the Rack and Pinion powers, the stress upon the several parts is in no way as great—and the liability of wear or breakage, from use or accident, is removed. The whole of the geering consists of less than one-seventh the number of cogs in the Rack and Pinion Power; and these are wholly removed from under the horses to the outside of the power—free from dirt, dust, &c., and always easily kept in order or cleaned, which is an advantage over all Rack and Pinion Powers. This Power has also the advantage of the changing of force and velocity to accommodate it to any variety of work, without any additional cost or danger to the geering or other parts. When the main shaft runs but fifty-six revolutions per minute, the diameters of the geers are such as to increase or decrease the velocity to two hundred and twenty-four, or as slow as fourteen revolutions per minute, when the animals (either horses or oxen) walk but two miles per hour—being about two-thirds the travel which is necessary with the Rack and Pinion Powers, to produce the same effect. This last fact is one of its principal features, and one of the greatest importance to the farmer. The geering, as well as pullies and couplings, all agree, and can instantly be transposed—each to each, and side to side. In this power the centers of motion of the geers are always in the same position to each other—requiring no guard or binding track over the chain above the pinions, to keep the geers together, as is absolutely necessary with all rack powers, and which serve to check the force of the power; and as the driving faces of the teeth on the rack and pinions become worn off, the loss of force increases, until they eventually stop, break, or slip by each other. The length of the sections or links of the chain, as also the width of the planks of the flooring, are same as in the improved Rack Power last described. With the above advantages, together with the epicycloydal form of teeth, adopted this season in its construction, the superiority of this power is readily seen.

This Power is admirably adapted for driving Threshing Machines, Circular Saws, Cotton Gins, as also Machine Shops, Elevators, Ferry-boats, Discharging and Loading vessels, Pile-driving, Cross-cut sawing, Pumping, Grinding grain, Churning butter, Cutting hay and stalks, Shelling corn, Grinding apples, &c. The angle of elevation necessary to operate this power, is never greater, but often less than either of the others here described, and which is inside of 1⅛ inches to the foot, with horses weighing 1060 pounds each, and without any harness. It has also an admirable arrangement for adjusting and tightening the chain, *not possessed by either of the others*—together with an improved brake for stopping the whole instantly—all within the power, and independent of the band and pullies, and does not require to be changed, when geers and pullies may be. The pulley used for threshing, with this power, is but three feet diameter, to effect the same as a four foot wheel does with the Rack and Pinion Power.

In all cases the shafting of all machinery manufactured by us is made to run in Babbetted Boxes, they being the most durable and perfect box in use—and not generally used by other manufacturers.

April, 1852.

New York Agricultural Warehouse.

A. B. ALLEN & CO.,

189 & 191 *Water Street, New York.*

PLOWS of a great variety of patterns and different sizes calculated for sward and stubble land, wet meadows and recently drained swamps, where roots abound. Among these plows, also, are the deep-breaking-up, flat-furrow, lap-furrow, self-sharpening, side-hill, double mould-board, corn, cotton, cane, rice, and subsoil, with single or double wings.

HARROWS—Triangular, Square, Geddes, and Scotch.

ROLLERS with iron sections one foot long, and of different diameters. These can be arranged on an iron shaft of any width.

CULTIVATORS of upwards of twenty different kinds, steel tooth and cast iron.

SEED SOWERS of six different kinds and prices.

HORSE POWERS—Endless chain and circular, of wood or cast iron.

THRESHERS, with or without Separators.

GRAIN MILLS of cast iron, and burr stone, to work either by hand, horse, or water power.

CORN SHELLERS, single and double, large and small, cylindrical to work by hand, or otherwise.

STRAW CUTTERS with spiral, straight, or circular knives.

VEGETABLE CUTTERS, for turnips and other roots, together with a great variety of all other Agricultural and Horticultural Implements kept in the United States, such as hoes, shovels, spades, rakes, manure and hay forks, grain cradles, scythes, snaths, &c., &c.

CASTINGS of all kinds, for plows, cotton gins, and rollers.

WAGONS and CARTS, for horse, ox, or hand.

STEAM ENGINES, for farm and other purposes.

Our Implements occupy three large stores, and we believe they make up the largest and most complete assortment in America. In addition, we have a machine shop employing upwards of one hundred men, where any articles in our line can be made to order.

A. B. ALLEN & CO.,
Feb., 1851. 189 and 191 Water St., New York.

A Productive Farm for Sale.

THE subscriber unable to give his active attention to the Farm he has cultivated for many years, offers the same for sale—either the whole or a part. 285 acres are cultivated, either cropped with grain, in meadow, pasture, or in preparation for spring crops. 65 acres are in thrifty woods.

This farm obtained the State premium, and a full description may be seen in the State Society's Transactions for the year 1847. Being in a system of rotation, cropped and seeded, a purchaser will find all the necessary work prepared for the season, admitting of possession whenever desirable.

The dwelling and buildings are comfortable, sufficient, and in good order.

A reasonable portion of the purchase money may remain on good security.

For other information and terms apply to Messrs. H. T. & Wm. Delafield, Front st., New York; B. P. Johnson, Esq., Agricultural Rooms, Albany, or to the subscriber on the premises, at Oakland, near Geneva.

April, 1852. J. DELAFIELD.

Prices of Agricultural Products at the Principal Markets in the United States. — Mar. 18, 1852.

	New York.	Boston.	Rochester.	Chicago.	Cincinnati.	Philadelphia.
Beef, per 100 lbs.	$5.25 *a* 6.59	$6.00 *a* 7.50	$4.50 *a* 5.00	$4.00 *a* 4.25		$4.25 *a* 5.75
do mess, per bbl.	9.50 12.50	10.00 12.00	11.00 11.50			14.50 15.00
Pork, per 100 lbs.			6.00 6.25	4.00 4.12½		
do mess, per bbl.	16.25 16.75	16.00 18.00	15.00 15.50	16.00 16.50	$14.50	16.50 17.00
Lard, per lb.	9 9¼	9¼ 10	8 10	7½ 8	6¼ *a* 8¼	9½ 10¼
Butter, do	18 28	20 25	16 18	8 10	9 16	14 16
Cheese, do	6¼ 7½	6 8	6 7	5 7	6¼ 7½	
Flour, per bbl.	4.63 5.00	4.75 5.75	4.50 5.00	3.00 4.00	3.22 3.40	4.25 5.75
Wheat, per bush.	1.10 1.15	1.00 1.25	98 1.50	50 68	61 63	92 1.02
Corn, shelled, per bu.	63 64	64 65	48 50	28 35½	25 28	61
Rye, do	74 75	72 73	69 70		50 55	72
Oats, do	41 49	40 43	32 33	17 20	20 21	38
Barley, do	76 80	75	67 70		30 40	
Clover seed, do	9¼ pr. lb.	9 *a* 11 per lb.	4.50 5.00	12½ per lb.	6.00	5.00 5.50
Timothy seed, do	14.18 per tce.		2.00 2.50	2.25	1.50 2.25	2.75 3.25
Flax seed, do	13.00 per tce.	1.20 1.35	1.25 1.50	1.00	1.00	1.30 1.35
Hay, per ton	14.00 16.00	13.00 15.00	8.00 12.00		8.00 11.50	
Wool, per lb	30 44	31 46	30 40	30 40	26 35	52½
Wood, hard, per cord			4.00 4.50	3.25 5.00		

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Improved Stock.

CATTLE of the Durham, Devon, Hereford, Alderney, and Ayrshire breeds.

SHEEP of the Native and French Merino, Saxony, South Down, and Cotswold.

PIGS of the Lincoln, Suffolk, and Berkshire breeds.

From our long experience as breeders and dealers in the above kinds of stock, and our excellent situation for purchasing and shipping, we think we can do as good justice to orders, as any other house in the United States.

A. B. ALLEN & CO.,
April 1, 1852—tf. 189 and 191 Water st., New York.

Field and Garden Seeds.

WE have recently imported from England, France and Germany, and have grown in the United States, expressly for us, a fine assortment of the best and most approved kinds of Field and Garden Seeds.

Agricultural and Horticultural Implements, a large assortment of the various kinds suitable for North and South America. A. B. ALLEN & CO.
April, 1852—tf. 189 and 191 Water st., New York.

The Journal of Agriculture,

A SEMI-MONTHLY Periodical of 32 pages. Edited by WILLIAM S. KING, Prof. J. J. MAPES, and A. W. DOWER, Corresponding Secretary of the Massachusetts Board of Agriculture. Published at Nos. 8 and 10 Gerrish Block, Blackstone Street, Boston. TERMS—$2 per annum; Four copies, $6; Ten copies, $14. The money must always accompany the order.

Among the principal contributors are M. P. Wilder, President Massachusetts Board of Agriculture, Dr. Charles T. Jackson, Levi Bartlett, John W. Proctor, President Essex Agricultural Society, Samuel Walker, President Massachusetts Horticultural Society, J. E. Teschemaker, S. H. Huntington, Hartford, T. B. Miner, Author of American Bee Keeper's Manual, Rev. J. L. Blake, D.D., Author of Farmer's Every-day Book, &c., Rev. W. Clift, and many other well known writers and practical men.

☞ Good Agents wanted in all parts of the country.
Address WILLIAM S. KING,
8 and 10 Gerrish Block, Blackstone st., Boston, Mass.
April, 1852—2t.

Clover and Timothy Seed.

NOW on hand and for sale at the Genesee Seed Store and Agricultural Warehouse, 63 and 65 Buffalo St.
500 bushels good Timothy Seed.
200 " prime Clover.
Rochester, April, 1852. J. RAPALJE & CO.

The Practical and Scientific Farmer's own Paper.

THE GENESEE FARMER,

A MONTHLY JOURNAL OF

AGRICULTURE AND HORTICULTURE,

ILLUSTRATED WITH NUMEROUS ENGRAVINGS OF

Farm Buildings, Domestic Animals, Implements, &c.

VOLUME XIII, FOR 1852.

DANIEL LEE & JAMES VICK, JR., EDITORS.
P. BARRY, Conductor of Horticultural Department.

Fifty Cents a Year, in Advance.

Five Copies for $2 — Eight Copies for $3, and any larger number at the same rate.

☞ All subscriptions to commence with the year, and the entire volume supplied to all subscribers.

Subscription money, if properly enclosed, may be sent (post-paid or free) at the risk of the Publisher. Address to

DANIEL LEE,
December, 1851. *Rochester, N. Y.*

POSTAGE ON THE GENESEE FARMER.—50 miles or under, five cents per year; exceeding 50 miles and not over 300, ten cents; exceeding 300 and not over 1000, fifteen cents; exceeding 1000 and not over 2000, twenty cents; exceeding 2000 and not over 4000, twenty-five cents; for any distance exceeding 4000, thirty cents.

STEREOTYPED BY J. W. BROWN, ROCHESTER, N. Y.